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IS PANTHEISM THE LEGITIMATE OUTCOME OF MODERN SCIENCE?[1]

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Pantheism presupposes monism. If God is the All, or if the All is God, the All or God must be homogeneous,—either spirit or matter. The distinction between the two must be nominal, not real. Either matter must be a mode of spirit, or spirit a development of matter.

Pantheism is in itself an ambiguous term. It may denote what might be called hypertheism, or it may be a mere euphemism for a denial of the being of God. It may be consistent and co-existent with sincere devotion and fervent piety, or it may exclude the religious element from thought and feeling. Under the first of these phases of pantheism I might class together, very widely as they differ, Spinoza, Berkeley, and Schleiermacher, who, in their profound and vast conception of the All-wise, Almighty, and Infinite Being, could not imagine existence as detached from him, nay, not even by his own creative fiat. As the atmosphere enfolds the earth in its elastic embrace, pulses in every type of organized being, is insphered in the countless globules on the crest of

[1] Read at the Concord School of Philosophy, July 31, 1885.

the wave, swells the bird-song, is broken into unnumbered diversities of pitch and tone in pipe, flute, and organ, lends and reclaims its constituent elements in the unceasing routine of chemical processes in Nature's laboratory, yet is one and the same atmosphere, entire, continuous, unbroken, undiminished, unincreased,—so does He, who alone is, breathe in all life, assume all forms, appear in all phenomena, constitute all harmony, beauty, and grandeur, and, no less, all that seems fearful, malignant, and evil, which seems so only because we, infinitesimal though integral portions of the supreme whole, have not perception sufficiently keen and penetrating to take in the diapason in which we bear our several parts, and for that very reason can hear little outside of the melody we make. In this system the One Being is self-conscious, freely willing, and morally perfect. As compared with him, we men have such consciousness as might be conceived of as residing in the individual organs and members of the human body, if each were conscious of itself, its place, and its functions, and of nothing more, while the man in his totality comprehended all these individual consciousnesses, with the sole directing and controlling power over the organs and members. On this hypothesis we might conceive, in each individual consciousness, of reverence, trust, and love for that on which all depend for guidance and government. Thus the individual man, though himself a part of God, may cherish sentiments of loyalty and devotion toward the Divine Totality of which he is a part.

Pantheism of this type has its logical issue in the denial of the existence of matter. God must be homogeneous, else not perfect. If nature and man are, in philosophical strictness, "but the varied God," and if He exists independently of material conditions—which is the only definition that we can give of spirit—then what we call matter is but a mode of spirit, having no existence except in the consciousness of God, and in the ideas which his presentific volition offers to those sub-consciousnesses which are parts of his own all-embracing consciousness.

Toward this type of pantheism modern science manifestly does not tend; for on this theory there is neither creation, nor development, nor evolution, but only emanation, contingent solely on the Divine will, in such a way that causation can be no more than an arbitrary and in no wise necessary relation of antecedence and

consequence. This form of pantheism, though philosophically untenable, as I have no doubt you think with me, so far from being anti-religious, is in no degree repugnant to Christianity in its most orthodox type, and in those peculiar features of its history which in this sceptical age of ours lie most open to objection and cavil.

But the pantheism with which modern science is charged with being in alliance is materialistic. The only God that it owns is impersonal Law, pervading the universe, necessitating all beings, events, and phenomena, inevitable and inexorable. This Law exists only in the multiform universe which it produces, sustains, and governs, and with which it is identical in such a sense that God and the Universe, the Whole, *τό πᾶν*, are mutually convertible terms. In the totality there is no self-consciousness. Consequently prayer and communion with God cannot be. The only self-consciousness in the universe is that of individual beings sufficiently developed to possess it. God himself is an agnostic. He knows not himself nor anything else. You and I know just as much of him as we know of the universe.

This form of pantheism, if you will not rather term it atheism, is certainly not inconsistent with such statement as might be made and has been made of the development theory. If matter is uncreated and eternal; if its elementary atoms had during a past eternity, and have now, the intrinsic power of self-organization and self-development, so that one of the nebulæ now floating in the far-off heavens, without any will or law save its own autonomy, must of necessity have in the process of ages its flora and fauna, its rational beings, its genius, taste, love, faith, and piety, which will in due time culminate in agnosticism; if the growth of man from a primitive speck of protoplasm is as normal and inevitable as the growth of the oak from the acorn in a congenial soil,—then there is no place for a personal God in our philosophy, and, if we shrink from the profession of blank atheism, the only alternative is to apply the name of God to embodied Law. This was the position occupied by John Stuart Mill during the larger part of his life, though he had receded from it when he wrote the essay on potential theism, published after his death. The avowed agnostics assert that no more than this is cognizable, though they give the more religiously disposed the benefit of a doubt, a possibility.

But let us see how much of this theory rests on substantial grounds. Remember that it is at best a theory, an hypothesis. Whether it will ever be more than this we cannot say. There seem, however, to be insurmountable obstacles in the way of its absolute demonstration, though not in the way of the establishment of the law of evolution on such a basis as to insure for it the general consent of thoughtful and scientific minds. Indeed, it has already reached that stage, except with certain persons who are stubborn literalists in the interpretation of Scripture. It is now generally believed, among those who are entitled to have opinions on such subjects, that the solar system—the same being probably true of other like systems—was originally a conglomeration of incandescent matter, which, in cooling, threw off successive rings that globed themselves into planets; that in this star-mist were the germs of all organic being; that specks of primitive protoplasm became self-multiplying cells; that from these cells were developed the earliest forms of self-transmitting life; that the existing species of plants and animals have been in large part the natural progeny of these earliest forms of life, and the result of originally infinitesimal differences, and accumulated increments of these differences, occasioned by varieties of position and surroundings, and that in the history of the physical universe normal development holds the same place that used to be accorded to specific creation, and may account for almost all things as they have been and are.

There are, however, points as to which a reasonable doubt exists in many minds not unscientific. If matter is eternal, how is it that it has not done more for itself in a past eternity,—that in our world there has been active development within what to the man of science is an historical epoch,—that there is incandescent star-mist still afloat in the heavens? Is it conceivable that the being that is from eternity can be mutable? Can the law of development have sprung up spontaneously? Can that law—uniform and acting upon matter originally homogeneous—account for all forms, diversities, and stages of being? Does it account, if for man, for all that he now is? Does it account for all the facts and phenomena which we call moral and spiritual? These are, all of them, points on which observation and analysis give us no data,—no grounds for reasoning. The law of development, even if estab

lished beyond doubt, does not of necessity cover the whole field. There is not sufficient proof that it comprehends all the working forces which have been or are in the universe. There may be, for aught that the scientist can affirm with certainty to the contrary, other laws, forces, and causes behind it, acting concurrently with it, or supplementing it. This certainly has been the belief of men who have had the highest reputation and authority as evolutionists. Darwin never fails to recognize the Supreme Will and Providence, and with so much of manifest sincerity and devout reverence that it cannot have been with him a mere concession to popular prejudice. Asa Gray, rather Darwin's coadjutor than his follower, and now justly holding the foremost place among evolutionists, is not only a theist, but a believing member of a Christian church of unchallenged orthodoxy. The theory in question does not in any sense or degree militate with theism. The only reason why it has been supposed to be anti-theistic is that very many persons have so identified the origin of the universe with the cosmogony of the Pentateuch, that they can conceive of God as the Creator only in the mode there specified.

Now, I do not believe that cosmogony was within the purpose of the author or compiler of the book of Genesis. His aim was to connect the name and thought of the Supreme Being with the various objects of false worship, as light, the sun, moon, and stars, and divers forms of animal and vegetable life, which had divine honors paid to them by the Egyptians and the Canaanites. With poetic feeling, and probably with a mnemonic purpose, he grouped these objects into a drama of creation in six successive acts, corresponding to the six working days of the week, in the hope, as it seems to me, that his devout readers might take those several days' works as themes for meditation, praise, and thanksgiving on the successive six days of the week, as all together on the seventh.

As a theist I look with special favor on the theory of evolution. The shaping of worlds and their inhabitants by unnumbered express acts of creation from nothing or from brute matter is inconceivable, and seems irrational,—especially so as to the creation of the many groups of species, not very far apart, which now never run into one another, and equally as to annoying and venomous plants, insects, and reptiles, which serve no discernible purpose in the economy of nature. It is difficult to imagine mosquitoes,

rattlesnakes, and skunks, with precisely such endowments as they possess, as specifically created, whether for their own happiness or for their services to other animals; while under the theory of evolution nothing is more probable than that certain conditions might lead to the contingent development, and equally to the ultimate disappearance, of forms of organized being that should sustain other than pleasant and healthful relations to their fellow-beings.

That the evolution theory presents itself to the human mind as pre-eminently rational and natural, that by its simplicity it commends itself to our ready adoption, that it has the advantage of intrinsic probability, so far from excluding a Supreme Creative Power, is precisely what we should expect in case the universe was and is the work of Omnipotent Wisdom. If there is a God, our own intelligence was derived from his, and must of necessity be in many respects in accordance with his. Though immeasurably transcending us in wisdom, he yet must, in portions of his character and administration, be intelligible and appreciable by minds that are what he has made them. The reasonableness of the development theory casts discredit, indeed, on the old idea of specific creation, but not on the belief in a Creator. Omnipotence could of course choose its own cosmogony; but it was antecedently probable that its cosmogony would be such as would be recognized with admiration by the most advanced and deep-seeing minds.

But not only is this theory consistent with theism; it is absurd on any other hypothesis. The pantheism which would claim kindred with the evolution theory wholly ignores conscious intelligence in the development of the universe. Yet eternal matter must have had in its primitive atoms the capacity of becoming all that it has been and is; that is, there must have been in the structure of those atoms that which could not fail of becoming life, muscular power, volition, mind, and soul. Each succeeding development must have had its germ in the preceding; all must have had their germs in the primitive cells; and these cells must have chanced into being by fortuitous combinations of atoms swirling in chaos. Under such conditions, combinations must have taken place; but that they should have been effected with the prophecy of such marvellous and diverse issues, that our own ancestry should

have thus had their birth with the certainty that their posterity would, after some thousands of generations, trace the long pedigree back to the time when "the waters stood above the mountains," and that all this should have taken place by a spontaneous energy in the stuff of which the worlds are made, by law without a law-giver, taxes and exceeds our credulity. On the whole ascending series we have, at each stage, a cause more big with effects, till we reach the primitive cell, or the atoms whose combination formed it, where we have a cause containing a series of effects reaching on through myriads of æons, itself uncaused. I say uncaused; for law is not a cause, but a mode of being or of action. Moreover, man is as far as ever from discerning any efficient material cause. There were several alleged causes, such as gravitation, magnetism, electricity, caloric; but they, even when we believed in their separate existence, were names, not for what we knew, but for what we did not know,—fence-words set up to hide our ignorance. They told us how, not why, things took place. They designated laws, not powers; and now, when they are found to be mutually convertible, and but one under several names, still the force of which they are modes and manifestations is as truly an unknown essence as they were. It shows us how, but does not tell us why, phenomena occur. Force is not creative, but executive. It has laws, but cannot make laws. It is an essential agent in evolution; but there is nothing in our experience or observation to indicate it as the original cause of being for that which is evolved. Force and matter conjoined could not make a universe, a world, an elephant, a butterfly, a moth, a fruitful germ.

Yet the agnostic, or the pantheist of the type now under consideration, admits the certainty of no other primitive existences than matter and force; for, if God and the universe are identical, God was not when the universe was not; he is the slowly shaping birth of matter and force, and, so long as there are nebulæ still to be condensed and peopled, he is not yet all that he will be. But evolution implies the primitive existence of that which was to be evolved. Nothing can have come out of protoplasm which was not potentially in it. There must have been in rudimentary existence, uncounted ages ago, that from which omniscience could have prophesied the being of your lecturer, of his mind with such

powers as it has, and of the stage of mental development—imperfect as some may think it—in which he has lived and is likely to die a believer in a personal God. This, to me, is not incredible; but, in order to believe it, I must have, behind and beyond the law of development, an efficient creative cause. That cause I can find only in a self-conscious and freely willing Being of infinite resources and unbounded power. Such a Being could lodge in primitive atoms the capacity of becoming all that they have become.

The origin of existence is, indeed, inconceivable; but equally so are the processes of nature with which we are most familiar. The growth of the oak from the acorn, were it a unique phenomenon, would present as difficult a problem as the formation of a world or a system of worlds. I find it as hard to conceive of the one as of the other occurring by any potency that can have been innate in the constituent atoms. Yet the material universe cannot have been uncaused; while the farther back we go in any imagined series of antecedent material causes, we only increase the complexity of the problem, and ascribe an ever-growing mass of causative power to each remoter member of the series, without ever arriving at a member that can have been uncaused.

But, on the hypothesis of a Creator God, there is less strain upon our faith under the evolution theory than under that of specific creation. In the former case we ascribe to him in the vast whole what takes place, as must be admitted, in separate parts of that whole; while in the latter we ascribe to him that of which we have no known precedent or example. The theist of the old school has no doubt that life has been transmitted from the parent stock of each race, that species have been greatly modified by climate, soil, culture, and circumstances, and that in every individual instance the living plant or animal is developed from a germ issuing from antecedent life. The scientific evolutionist simply asserts that the laws or processes which are manifested in all the organic being that now exists preceded, and were represented in, the initial stages of organized life; in fine, that the Creator made the universe in the same way in which he is constantly making it anew,—that the pristine development of nature was in close analogy with what the course of nature always has been and is now. The evolution theory, then, has no pantheistic tendencies which

do not equally belong to the known and indubitable facts and phenomena that are of familiar and constant recurrence.

I have spoken of the universe as if it began to be. The theory that the present order of nature is but the continuance of what always was, of an eternal past, is set aside by modern science. Matter may be eternal in the past; the cosmos is not so. If the cosmos is God, there was a time when, there being no cosmos, there was no God. We know that there was a beginning. The shape of an oblate spheroid could have been given to the earth only by revolution on its axis in a semi-fluid state. Moreover, planetary and—so far as it can be determined—stellar motion is not in a vacuum, but in a resisting and retarding ether, so that the planetary orbits are not circular, but spiral, with diameters decreasing, in an infinitesimal ratio indeed, yet in a ratio which could not have been maintained through a past eternity without the absorption of the planets into the sun from which we have no reason to doubt that they were thrown off. Thus, while on the one hand geology is multiplying by myriads the formerly reputed centuries of the earth's duration, astronomy bears equally clear testimony to the beginning of the worlds that are now, and of the present laws and system of the universe. Nay, geology equally refutes the theory of an unbeginning, eternal series of generations, indicating a birth-time, though in an antiquity whose depths imagination cannot fathom, for organized existence,—a time when on our planet life was not. Thus, science gives us an epoch of which one of the tenable theories is that announced in the first sentence of what many believe to be the oldest book in the world: "In the beginning God created the heavens and the earth."

Let us now consider somewhat in detail the alternative theory to that of an intelligent Creator. There are two alternatives. The universe either was the product of intelligent design, with power adequate to actualize its purpose, or it chanced into being. There is no middle ground; for, as I have said, if the universe is God, God was not when the universe was not. In the pantheistic theory, matter must have been eternal in the past. Its primitive atoms must have been self-existent, of various shapes, according to Epicurus and his followers; of different chemical properties, according to other later authorities; according to still later, homogeneous, but varying both in shape and in bulk. As detached

and separate, they were in, or rather they constituted, a fluid state, and were in incessant motion. For some unexplained reason their motion was not rectilinear, so that mutual impacts, adherences, and entanglements were inevitable. Thus were formed clusters of atoms, some of which blundered into symmetry, thence into organic structure, thence into life, which was the necessary outcome of organism,—a process which had been going on for myriads of ages, and the completion of which in any single portion of matter had not been without myriads of failures,—of such failures as may at this moment be represented in the still uncondensed nebulæ. Failures, of course, leave no definite record, so that successful and fruitful impacts and combinations alone remain from the innumerable æons of dice-work that must have elapsed before the swirl of atoms was abated and chaos yielded to law and order.

There are about sixty elementary substances which constitute the organized and inorganic bodies on the face and in the crust of the earth. If, in the last analysis, they are homogeneous, and are —as I have no doubt that they will be found to be—one element, they can hardly represent a less numerous diversity in the shape and bulk of their component atoms; and, however this may be, it is virtually as elements that they enter into the forms in which they constitute, and must from the first have constituted, organized being. Were we to belt the solar system with figures, we could not express the number of possible combinations of two or more of these elements, any of which might have taken place in chaos. But of these combinations the immeasurably larger part would have been of elements mutually incongruous, incompatible, destructive,—a very large proportion, such as could not happen without wide-spread devastation and ruin. With the perpetual imminence of catastrophe we can hardly conceive of the survivance of any of the more congenial and hopeful combinations that had begun to be, still less of such combinations as would constitute a cosmos, an orderly world, so pervaded with mutual dependencies, ministries, and uses as to suggest to minds, if not of the highest type, considerably above the average, a unity of plan and purpose in an intelligent Creator as the only tenable cosmogony. In point of fact, we find no combinations that look as if they had merely happened into being,—none that do not seem to belong to a system; and there are very many systems which, without any mu-

tual causative relations, fit into one another as do the several parts of a skilfully constructed machine, supplying one another's deficiencies and needs, their very discords resolving themselves into staccatos or interludes in the universal harmony. In fine, this world is so made that the theory of design in the Creator is in accordance with spontaneous impression and first thought. One is disabused of it only by philosophical processes that are at the outset uncongenial,—by a great deal of making believe before the belief is really entertained.

Still further, in the solar system there are many identities, proportions, and relations which denote a oneness of plan in the structure and motions of the planets and their satellites. Gravitation is indeed said to account for them; but, as I have shown, gravitation is a law, not a force, and in a chance-made universe there is an intense improbability that bodies would act upon one another at such enormous distances. Gravitation, so far from accounting for these things, is itself to be accounted for. But there are harmonies and analogies in the planetary system which it is not even pretended that gravitation can explain, and which therefore either happened or were designed. Laplace, who was a professed atheist, admitted that, over and above gravitation, there was some inscrutable cause for these phenomena. He subjected them to mathematical calculation, and as to forty-three concurrent motions of planets and satellites he made the probability of their occurrence by chance to be one to four billions four hundred millions. Until some other efficient cause shall be discovered or imagined, I must regard these myriads against one as affording a strong presumption in behalf of an intelligent Creator.

Astronomy has gone still further and extended a like calculus, with similar results, though, of course, only with approximate accuracy, to the stellar universe beyond our system, to the binary stars, to the drift of stars in space, and to the nebulous patches in the heavens.

There is indeed a logical possibility that the entire universe may have been evolved by chance, especially as there is a past eternity for the play of chance. The probability that Milton's "Paradise Lost" might be constructed by drawing letters one by one out of a bag has been calculated, and it would take five hundred thousand figures—four figures representing thousands; seven,

millions, and so on—to express the adverse probability, and yet eternity is long enough for the one chance to occur; but an immeasurably larger draft on eternity would be necessary for the successful, permanent, fruitful relations and analogies of a chance-made universe. The mathematicians in my audience will appreciate my statement when I say that if m represents the number of chances against any single combination, relation, or analogy, m raised to the x power would express the chances against the number x of such combinations, relations, or analogies as enter into a harmonious system; and x in this universe of ours would be a number so far beyond the possibility of estimate that only an infinite mind could form any conception of the x power of m.[1]

I do not myself feel the need of mathematical reasoning on a subject which belongs so intimately to the heart and soul; but chance is sometimes talked of in a vague way, as if it were the most natural of suppositions that things happened to be as they are, while in truth chance is a mathematical idea, with its determinate logic and calculus, and what it really means and is actually worth can be made plain only by a mathematical statement.

Let me now speak of some portions and features of the universe which are not accounted for by the evolution theory alone,—which indicate choice, design, and will in a sense other than can be implied in the conception of a God merely co-extensive and identical with nature. This may be affirmed of beauty. Symmetry and adaptation, though not infrequently essential to beauty, do not of themselves create beauty. In the process of evolution every organ and member of every planet or animal must have been generated by need and circumstance, and perfected by use; and, were this all, there could be nothing in the various organisms that was not necessarily allied to the condition, habits, wants, or further development of the species, or was not the vestige of some anterior stage of development. There could have been no surplusage, but only rigid parsimony. We see, however, much that does not serve, and never has served, any functional purpose. Over and above all possible use, present or past, there is a superfluity of beauty,—flowers of the richest dye and most graceful contour, a

[1] The mathematical calculations here given formed, in substance, a part of an article by the writer in the "Princeton Review" for March, 1880, on "The Religious Aspects of the Logic of Chance and Probability."

hundred-fold larger than are needed to shelter the tiny seed ripening at their base, iridescent plumage which gives no added speed or power, in fine, numberless combinations of forms and tints that have no imaginable purpose but to adorn the gala-robes which are Nature's working-day attire.

The beauty of the universe is the more noteworthy when we consider that it belongs to decay no less than to growth, to autumn no less than to spring, to death no less than to life. The system is one in which decline and dissolution are perpetual; death feeds life, and life, while it lasts, is prolonged only by dying daily. Were the problem presented to a theoretic world-builder of a world in which the tokens and aspects of vigorous and fruitful life shall alternate with periods as long or longer of life waning, extinct, renewed only by infinitesimal increments, he might provide in his scheme for some fair show of bloom, fruitage, and exuberant gladness, but could in thought and vision go no farther. So to embroider the veil thrown over retreating and perishing life as to make it even more gorgeously and gloriously beautiful than that whose vanished splendor it covers, postulates a more than automatic process, more than a God imbedded in nature, unconscious, otiose. It implies in the creative force a conscious love of beauty, —an æsthetic nature which must have rejoiced in the loveliness of its works when the only song of praise was that of the morning stars, and which kindled a kindred æsthetic sense and joy in the living souls of men. I do not mean to except beauty from the evolution theory. I have no doubt that what of beauty there is in beast and bird, tree, shrub, and flower, was potentially in the primitive cells from which they sprang; but that every member of each ascending series should be so fringed and garlanded as to serve no purpose save that of gladdening the eye and heart, betokens not mere self-developing nature, but a beauty-breathing, joy-giving spirit presiding over the birth of nature, flowing in the myriad streams in which the fountain of life has parted itself along the ages, and ever revealing itself to recipient minds and souls.

To pass to another topic of similar bearing, on the pantheistic hypothesis life must have been at the outset spontaneous. Matter under certain conditions crystallized—if I may borrow the term—into cells, from which sprang, was propagated, transmitted, de-

veloped, all the life that has been and is in our planet. If this was the case, is it conceivable that matter should no longer be capable, under the most favorable conditions, of bursting into life? Spontaneous life has, indeed, its place in the popular belief. Stagnant water, decaying vegetables, decomposing animal tissues, have been thought to breed insects and worms. But science interposes its negative. Some thirty or forty years ago there was almost a pæan chanted by scientists of the then nascent and anathematized school of evolutionists when the Acarus Crossii was announced as a parentless species of animalcules that had been born of pure water; but the experiment, on more minute investigation, proved unsatisfactory, and has, I believe, never been successfully repeated. Thus we have no evidence that there has been in this world life which was not derived from pre-existent life. What life is we know not; but we do know all the constituent elements of animal and vegetable structure, all the methods of their combination, and all their modes of action. If matter and force alone existed in the beginning, they equally exist now, are at our free command, and can be combined in unnumbered ways so as to perform movements and acts analogous to those of living beings. Yet matter has as yet never, within the knowledge of man, begun to live, whether by its own inherent tendencies or by the application of science, art, and skill. If the source of life were in matter, we might not unfitly expect the origination of life within historical epochs. But, as we can trace back to matter everything in organic being, life alone excepted, is it not at least probable that life came from elsewhere? If all the life of which we have any knowledge was derived from pre-existent life, does not analogy point to pre-existent life as the primeval source of all terrestrial life, and thus justify our belief in a self-existent life-giver?

But, even if life in itself be not admitted to indicate primeval and underived life as its source, there are characteristics of human life which contradict the theory of a material origin. Human life, we cannot doubt, has been transmitted through a long succession of human ancestors, and, it may be, through previous æons of a subter-human parentage. Yet, as it now exists, it can be discriminated in certain essential aspects from brute life. We have no reason to suppose that other animals than man have any ideas, conceptions, purposes, sentiments, aspirations which have not their

source, their object, their measure, their limit in the material universe. The most intelligent of them have taken in through the senses all that they know and think, and can have been prompted by experiences derived only through the senses in all that they do. Their enjoyment is commensurate with favorable external conditions,—the only seeming exceptions, those of strong attachment to human beings, being really cases in point; for they are cases in which the animal's self-dependence has been merged in a dependence the withdrawal of which leaves him destitute and incapable of any other resource. But man has a supra-sensual life. He has conceptions to which nothing in the material universe corresponds, sentiments that have no material counterpart or object, desires and aspirations entirely independent of the outward world, the capacity of a happiness so utterly non-contingent on external conditions that it can be maintained in its fulness under circumstances that in themselves can be productive only of suffering and misery. Human ethics are super-sensual. Developed man has a system of morality to which hedonism does not hold the key. He recognizes virtues which can give no pleasure except in the consciousness of their exercise,—moral evil which inflicts no other misery than the sense of its evilness. The intrinsic and eternal Right comprehends fitnesses and excludes unfitnesses which can by no possibility have become known through any material sources or by any material experiences. This supra-sensual life must have had its origin, its beginning, and can have been derived only from a kindred parent-life,—not from a God co-extensive and identical with material nature, but from God who is a spirit, and of whose moral nature man's is the outcome.

Finally, the religious consciousness of men under all forms of culture and of worship bears testimony to the existence of him whom, in distinction from the pantheistic conception, we term a personal God. In the most literal sense, we cannot, indeed, be conscious of the being of God, or of any being but our own. But we can be conscious of a Divine sonship, as we are of traits inherited from human parents or ancestors,—of a tendency to worship without which no mere training could make us worshippers,—of a capacity for love which human loves can never satisfy,—of an appetency for good which the thought of One supremely good underlies. All that is most noble in us, while consciously subjective, blends

spontaneously with and in the conception of objective truth, beauty, and goodness; and the traits of that truth, beauty, and goodness, so far as they are objective in our thought and feeling, are unified. The more intense these conceptions are, first subjectively, then and thence objectively, the less are they scattered, the less is their polytheistic tendency, the more distinct and unvarying is their polarization in One supremely True, Beautiful, and Good.

Nor yet can we shut out the testimony borne in all ages by the souls that have prayed in faith and sincerity. That in the inner man they have experienced what seemed an answer to their prayers none can doubt; for it is the very persons that have asked of God strength for duty, support in trial, peace under adverse conditions, who have wrought the most valiantly, endured the most bravely, lived the most truly above the care-cumbered and sorrow-stricken world. Somehow, men have been lifted by prayer into a higher region of experience. Either they have lifted themselves without a purchase, or they have got a purchase on the throne of the Eternal God. The former alternative is opposed to all known laws of spiritual dynamics; the latter cannot be if there is no God other than Nature.

IS PANTHEISM THE LEGITIMATE OUTCOME OF MODERN SCIENCE?[1]

BY EDMUND MONTGOMERY.

The question here proposed is a timely one. It ought to receive a prompt and decisive answer. After so much accurate research into the constitution of things, modern science ought to be able to tell us whether it rightly leads to the conclusion that all natural occurrences are manifestations of one and the same eternal power. If this is its legitimate outcome, then we may safely rejoice that the long conflict between science and religion has at last ended in peaceful union; that modern Science and modern Chris-

[1] Read before the Concord School of Philosophy, July 31, 1885.

tianity, in spite of so much ostensible enmity, have nevertheless—each by its separate road—reached the same haven of truth and repose. For impartial judges will hardly deny that modern Christianity, freeing itself more and more thoroughly from authoritative decrees, trusting more and more implicitly the dictates of rational self-consciousness, has come in its inmost heart to avow the transcendent unity of all that is essentially real, and therewith its identity with the one eternal power, from which everything is believed to originate, and in which we ourselves are said "to live, and move, and have our being." Indeed, the *rationale* of modern Christianity, in its esoteric formulation, has become one with the philosophy now taught in our foremost Christian universities—a philosophy endeavoring to prove the reality-constituting efficiency of thought, and the resting of all such reality in one supreme, universal Intelligence.

It is an historical fact that human thinking, whenever it has been free to expand to its utmost, has all but invariably reached pantheistic conclusions. From whatever manifold data it may start, it generally ends by identifying and unifying everything. The manifest interdependence of all natural phenomena, and their unitary wielding from a hidden sphere of efficiency, has always impressed contemplative minds with a keen sense of its paramount import.

In the Vedas, the great Power underlying phenomena is made to exclaim: "I am the light in the sun and moon; I am the brilliancy in flame, the radiance in all shining things, the light in all lights, the sound in the air, the fragrance in earth, the eternal seed of all things that exist, the life in all; I am the goodness of the good; I am the beginning, middle, end, the eternal in time, the birth and death of all."

An ancient Egyptian hymn thus addresses the same unitary Power: "Thou art the Lord of Lords, who revealeth himself in all that is, and hath names in everything. Thou art Youth and Age. Thou givest life to the earth and its streams. Thou art heaven, thou art earth, thou art fire, thou art water, thou art air, and whatever is in the midst of them."

It is universally felt, the world over, that the essence of reality is acting-power, which to us means phenomena-producing efficiency. And it is a natural tendency of our human comprehen-

sion to unify such power; to regard all phenomenal revelations as the manifestation of one and the same eternal efficiency.

In its early poetic rapture, the mind of world-dependent man, intoxicated with pantheistic veneration and awe, finds divine presence and fulfilment in every natural object and event. But, sooner or later, ripened experience, with its miseries and disappointed hopes, causes it to relinquish its youthful faith in temporal facts and aspirations. Sickened at all the cruel happenings of this delusive and transitory realm of sense, it ends in yearning toward deliverance from the insufficiency of time-mutations, through reunion with the eternally One.

The transcendent enlightenment that, in the solitude of Bohimanda, filled the ardent soul of Gautama with blessed peace, and the message of deliverance to all men; that in the Judean wilderness entered the compassionate heart of Jesus, bracing it with unwavering fortitude to show—in opposition to all the killing powers of this earth—the way to the kingdom "which shall never be destroyed," there to become "perfect as the Father in heaven is perfect"; the enlightenment that with ineffable satisfaction has entranced the mystics and saints of all ages and climes; that beatific enlightenment has ever consisted in the penetration of the dreamlike evanescence of this whole checkered display of sense, urging the undying life in us to draw near and nearer the unbroken light of eternal Perfection; renouncing for evermore the delusive allurements of this temporal scene of passionate strife.

Manifest existence, restless shifting in Time; it is only an unreal semblance, a phenomenally estranged emanation from eternal All-Being. This is the conviction that has ever formed the central incentive to saintly life.

Now, is it true that modern science, assiduously testing such phenomenal existence, following it up in all its intricate relations with rigorous precision, that genuine objective science, has actually arrived at the same ancient pantheistic conclusion? Does it, in all verity, likewise teach us that the things and events of this world are but transient manifestations of one and the same transcendent and eternal Force, Energy, Power, or whatever name may be given to the inferred cause and substratum of all apparent existence?

If, as now claimed by eminent philosophers, science has posi-

tively shown that all natural phenomena are but so many modes of manifestation of one persistent Force or Efficiency, all such modes being mutually convertible, so that new phenomena only arise through metamorphoses of previous modes of manifestation —if such is really the verdict of modern science—then assuredly its outcome is full-fledged Pantheism.

I have no desire whatever to contest any legitimate outcome, and if it were Buddhistic Nirvana, or even the place where Dives received his compensation. But let us scrutinize somewhat more attentively the great principle of the Conservation of Energy or Persistence of Force, which seems so suddenly and strangely to have landed modern science in the mystic realm of transcendental Pantheism. I say *transcendental* Pantheism, because natural science has often before been tempted to acknowledge in the common material substratum a pantheistic One-and-All, differing altogether from the transcendental source of immaterial energy here assumed.

Natural science has reached the principle of the Conservation and Transmutation of Energy by detaching, from the constant quantity known as matter, or rather mass, all modes of motion, and therewith all activity in nature. To such activity it gives the name of Energy, and maintains with regard to it that it is likewise a constant quantity, never diminishing nor augmenting, but undergoing transmutations from one mode into another.

Mayer, of Heilbronn, the illustrious discoverer of this great magistral and potent Abracadabra of modern science, explains that matter, the passive half of nature, being notably a ponderable object, activity or energy is distinguished from it by being an imponderable "object"; and that this immaterial object is the cause of all effects; at once producer and product; at once *natura naturans* and *natura naturata;* effect of itself, veritable *causa sui.* One mode of energy—kinetic energy, for example—is the cause of another mode of energy—heat, for example—and the kinetic energy causes the heat-effect simply by converting itself into it. Mayer says: "Since c becomes e, and e becomes f, etc., we must regard these various magnitudes as different modes, under which one and the same object makes its appearance."

Modern science, however, while playing such surprising juggling-tricks with the immaterial "object" called energy, refrains

from doing the like with the material object called mass. And here it is that our pantheistic imagination encounters its first serious check. Never, by any means, does modern science contrive to make it plausible that one kind of mass becomes converted into another kind of mass—a pound of oxygen into a pound of hydrogen, or a pound of carbon into a pound of sulphur. And no alchemy of art or thought can avail to make different masses result from the varied manifestation of one and the same unitary power. For, even if we admit that our present chemical elements are really compounds, consisting of multiples of one and the same primordial unit of mass, such original homogeneous substratum science looks upon, and is in fact compelled to look upon, as made up of discrete elements of stuff—of such stuff, we may philosophically add, as matter is likely to be, independently of our perceiving it. As far as natural science can at all proceed with its analysis—and, by dint of its newly acquired appliance of spectral analysis, it can proceed very far—it everywhere detects persistent, individuated units, as the original material, of which all things in nature are composed. It finds elementary separateness, primordial multiplicity, and by no means indiscerptible Oneness, invariably underlying that reality, which we perceive as the objects of this world. These are, evidently, compounds of definite given units, not differentiations of a conjectured unity. They are gradually elaborated combinations of primitive particles of world-stuff, not particularizations within the identical perfection of pre-existent All-Being. Further into the mystery of creation science cannot penetrate. But such is its ultimate, veritable, legitimate outcome —an outcome utterly and uncompromisingly *un*-pantheistic.

And now to revert to the energy by which the natural compounds are moved to display their various modes of activity; it is indeed only a whimsical fiction, a conceptual trick of our abstracting and unifying mind, to conceive such energy as one and the same immaterial, indestructible entity, entering in and out the inert masses, and metamorphosing itself into all manner of modes. A motion cannot possibly exist independently of its moving mass. It cannot detach itself from such a mass and become a separate thing in order to enter some other mass. Energy is avowedly a *product* of mass and velocity. How, then, can energy, leaving its mass behind, nevertheless remain quantitatively equal?

Modern science, so naïvely proud of this its Will-o'-the-wisp conception of natural efficiency, has obviously—here at the very starting-point of its deductions—lost itself in fancies as erratic as any dream of speculative philosophy. With deeply-felt humiliation be it confessed that the notion of an immaterial agent playing in mid-air, in free space, a complicated game of billiards with elements of mass, is not a very edifying cosmological outcome of our much-vaunted modern science. And this outcome is certainly not Pantheism.

But, perhaps, by allowing full swing to conceptual Thought, that arch-juggler—by force of some dexterous dialectical handling of the stubborn results of science—may, after all, succeed in bringing about a pantheistic outcome. Indeed, accepting the notion of Energy as formulated by modern science, if the stolid *caput mortuum* of things called mass could only itself be somehow converted into such energy, then we should have in our world but one single immaterial entity, metamorphosing itself into every known mode of manifestation; and that would evidently be Pantheism.

Nothing easier, says our juggler. For, if mass were not energy, how could it affect our own being so as to become conscious to us? In fact, when the matter is reconsidered, it will become clear that mass, instead of being effectless inertia, must itself constitute a very centre of efficacious energy. Mass exists and is known to us by its resistance; and what is resistance but energy? It is measured by means of its weighing pressure; and what is weighing pressure but again energy? Obviously, in whatever way we may ascertain the existence of mass, and by whatever sense we may realize such existence, energy, and nothing but energy, is found as the whole essence and substance of it. Mass, then, is no effectless *caput mortuum*, as assumed by philosophically unenlightened science, no inert plaything of a disparate immaterial power, but is itself identical with that power, forms itself part of the energy-emanating potency, through which our phenomenal world issues into manifest existence. I think our dialectical juggler may confidently challenge any one within hearing distance to disprove the truth of these assertions—assertions which undoubtedly have the genuine pantheistic ring.

But now arises the supreme puzzle in the world-problem, and

that is to fix the veritable seat of the nature-constituting power, of the phenomena-producing efficiency. Here again our consummate juggler steps in, seizes upon the only reality which his art has left in existence, and, with a facile turn of his dialectical skill, shows us that this sole efficiency in nature can be nothing but mental intelligence. For is it not true that the subjective sensations of resistance and pressure, or other subjective sensations, standing as signs for these; is it not true that such mental facts are the only actual data from which our conscious being, our understanding or intelligence, constructs that phenomenon of solidity which we call mass? And are not all other properties of this intelligence-constructed nucleus of objective phenomena, its motions included, likewise put together by our constructive intelligence from other data of sense, which are also only purely mental facts? Resisting, extended, shaped, visible, tangible, audible, tastable, scented objects, and all their sundry relations to each other within that system of phenomenal existence, which in our consciousness constitutes the world we know, is it not all in all the work of our constructive intelligence? And this being so, is it not undeniable that all objective world-phenomena are intellectual constructions, products of synthetical thought; that Thought is thus the veritable, universal power, the great and sole creator and artificer of phenomenal existence?—No reality whatever, no world—external to Thought.

If mental philosophy be admitted into the system of knowledge here designated under the name of "modern science," then this, its Eleatic, neo-Platonic, neo-Kantian, transcendentalistic outcome is outright Pantheism, whatever Theistic twists may be given to it in some quarters. It does not essentially affect the pantheistic character of this outcome, whether the all-efficient, reality-constituting power be conceived by human understanding as eternal Reason, or creative Will, or all-embracing, super-mental Perfection; the universal meaning of it all is an entity infinitely transcending all modes of phenomenal existence, being the common, identical source and origin of them all.

On various occasions, while propounding and defending my own naturalistic views, I have endeavored, to the best of my ability, to enter into the spirit of this profound and venerable system of thought that, from old, has inspired so many noble minds,

and from which all other philosophy has emanated. In the light of a new science of vitality and organization I have sought to give a different explanation to its truths, and to lay open its deficiencies and fallacies. Here I will only reassert that the ethical aims of genuine Transeendentalism and the ethical aims of genuine Naturalism are diametrically opposed to each other, and can never be reconciled. If supreme reality and truth are indeed preexistent facts, securely resting in a universal Intelligence, and our phenomenal world means only the inadequate rethinking on our part of such eternal reality and truth, then, consistently, our final aim must necessarily be the dissipation, through adequate thinking, of the illusive phenomenality which differentiates our individual intelligence from universal Intelligence. Our inmost striving can only be for deliverance from the sense-wrought confusion of temporality, leading to complete re-identification with the eternally One.

Asceticism and Quietism are the necessary outcome of all lofty Pantheism; and Pantheism the necessary outcome of the religion of self-questioning consciousness, as well as of that of an *ens amplissimum* or Absolute.

The central belief of Naturalism, on the other hand, is the conviction of the extra-mental existence and veritable reality of powers actually affecting our sensibility. It firmly maintains, as a steadfast basis of all its reasoning, that individual perceptions are compelled by powers not forming part of our own consciousness; and that these perceptions signify representatively, but with minute precision, the true characteristics of the compelling powers. All doings of natural life, all investigations of natural science, are, in fact, prompted by this fundamental belief, and find their realization and verification in the world of perceptual compulsion. It follows therefrom that what we consciously realize as our own body is likewise only a group of such compelled perceptions and, that not these perceptions themselves, but the powers compelling them, are constituting our real bodily existence—an existence forming part of the great system of extra-mental powers, of which our whole perceptual world is but a more or less faithful symbolical representation.

Naturalism further recognizes that this our extra-mental being is standing in most manifold and complicated relations to other

extra-mental existents; and that it has been gradually, phylogenetically moulded and intimately organized through constant interaction with these existents. In consequence of this, its vital reactions are found to constitute pre-organized responses to the actions of the other power-complexes, and its own actions show themselves capable of influencing, in pre-established ways, the existence of other power-complexes.

Veritable reality, then—the reality phenomenally represented in consciousness—is found to consist of a system of definite, interdependent, interacting, extra-mental power-complexes. These efficient existents, compelling the perceptual objects of our consciousness, have to be looked upon as of *complex* nature, because analysis proves them to be composed of constituent parts. The dream-like phenomenality in nature, the transient appearance and evanescence of perceptive realizations, is evidently due to the nature of our consciousness, and not to the nature of the power-complexes compelling its perceptions. Our consciousness or mind represents, in fitful gleams, under varying conditions and temporal intermissions, the incomparably more steadfast existence and nature of the extra-mental power-complexes. And the natural *phenomena* or perceptive objects of our conscious world are therefore by no means manifestations of one and the same Force or Unknowable, but, on the contrary, manifestations of an extra-mental, non-phenomenal nature, at least as diversified and specialized as its mental representations. Pantheism is consequently no legitimate outcome of Naturalism, the genuine philosophy of natural science.

The utterly erroneous conception, that manifest existence consists of nothing but phenomena which are mutually convertible, has given rise to this pseudo-scientific revival of the pantheistic philosophy of the Absolute. But not even within the world of phenomena, which exists only in individual consciousness, does one phenomenon or mode of manifestation become really metamorphosed into another. Physical modes, which as such are only peculiar conscious phenomena, do not become transformed into other such physical modes, or into any other kind of conscious phenomenon whatever. The preceding mental state, whether objective or subjective, whether physical or purely ideal, whether extrinsically compelled or intrinsically arising, does not itself *produce* the following mental state, as Fichte once tried to make us

believe. Much less does an extra-mental power-complex become transformed into its mental representation; for example, that definite power-complex steadfastly abiding out there into that occasionally-appearing conscious object which I call a Tree. And still less are the changes in phenomenal manifestations caused by one power-complex being metamorphosed into another power-complex. The action and effect of one power-complex on another does not consist in their being mutually transformed one into the other. And neither is the change, perceived by us, during activity, as motion, itself an efficient entity, passing over from one power-complex to another. Changes in nature, while occurring, affect our sensibility, and are realized by us through the shifting of the whole or of parts of our perceptual objects. It is this sensible shifting which we call motion. Quite obviously, such motion is a mere mental sign of the changing influences which the extra-mental complexes exert on each other. But by illusively objectifying and fictitiously endowing with independent efficiency this mere mental sign of veritable change, modern science arrives at its false conclusion concerning the persistence of Force and convertibility of its modes. It mistakes motion, the perceptual phenomenon, for an actual and direct manifestation of objective, extra-mental Force. And as changes manifest themselves to us as motions, and one mode of motion *seems* to produce or to transform itself into another, it rashly concludes that motion, which thus stands for all activity in nature, is itself the causative force; that its various modes are, therefore, modes of efficient power; and that the unitary entity, thus metamorphosing itself into all manner of modes, is an all-efficient Unknowable. This pantheistic conclusion is—as has been here clearly shown—the outcome of illegitimate reasoning, and not of genuine modern science.

The results of modern science point to a gradual elaboration of abiding and diversified power-complexes, not to the metamorphosis of fleeting modes of manifestation of one and the same eternal Power. The philosophy of Evolution is quite incompatible with the philosophy of a protean, all-powerful Unknowable. Evolution which conceives "every kind of being as the product of modifications wrought by insensible gradations on a pre-existing kind of being" cannot be brought in harmony with the convertibility of one mode of an unknowable into another.

The extra-mental power-complexes with which modern science actually deals modify each other, mostly very gradually, through intricate modes of interaction. They are therefore slow results of complicated elaboration, which process is altogether operated in the non-phenomenal sphere of extra-mental subsistence.

Our own personality we are justified in regarding as the most consummate outcome, within our own ken, of this natural process of development—a development wholly inscrutable in its origin and efficiency. The mental phenomena of our personality are certainly not produced by motions within the perceptual body, which constitutes for us and others its sensible realization. But they are the outcome of transcendent activities, occurring in that mysterious entity which, beyond all consciousness, is carrying on, with unremitting faithfulness, the wondrous functions of life.

In our being are consolidated the hard-won results of endless vital travail. Wrought from insentient chaos, our world-harmonized existence, with delicately sensitive throb, now answers to most subtle and far-reaching influences. Sympathetically, with ever-widening comprehension, it re-echoes the thrill of connatural existence. But how precarious this precious, toil-wrought inheritance of high-pitched, consentient vitality! Within this very moment of actual presence, we here on earth, sole surviving embodiment of ever-struggling, victorious life, only through the unrelaxing effort of uplifting efficiencies, are snatched, from instant to instant, from the grasp of all-engulfing Time and Death, a dizzy whirl of creative commotion significantly shaping and livingly sustaining our being. And on this restless foil of incessant formative stir, in self-luminous glory, the transcendent import of our time-conquering, world-responsive nature stands revealed within the phenomenal repose of our all-realizing mental presence.

Actual living existence, thus recognizing its transcendent indebtedness to the Past, and its sacred duty to a Future wholly dependent on it, can it have the heart in self-indulgent renunciation to abandon its creative trust and task, giving itself up to the quietistic aims of Pantheism, by which it may well enough succeed in losing its own being in the eternal nonentity of Nirvana, but by which it will also most assuredly cause surviving human life to drop from its cultured height, and swiftly to fall a prey to the hideous miseries of mere instinct-driven savagery?

A creed which, universally and consistently lived up to, involves the voluntary extermination of the human race, leaving our fair dwelling-place one vast arena of murderous brute-passions, and which, lived up to only by the better part of mankind, would lead to degradation of social existence—such a creed is not the one fostered by science. Nowise is the legitimate outcome of modern science Pantheism.

IS MODERN SCIENCE PANTHEISTIC?[1]

BY G. H. HOWISON.

In turning over the foregoing question for several months, I have become more and more impressed with the conviction that any satisfactory answer to it depends upon a clear apprehension of the meaning of its terms. What *is* pantheism? And what features are there in modern science that can give color to the supposition that pantheism is its proper result? Or, if such a supposition is well founded, why should the result be regarded as undesirable? If science establishes, or clearly tends to establish, the pantheistic view of the universe, why should this awaken alarm? What hostility to the vital interests of human nature can there be in such a view? Can there be a possible antagonism between the truth and the real interests of man?

The question before us probably does not convey to most minds the depth and intensity of interest which is so manifestly conveyed by the question of Immortality recently discussed—at least not on its surface. Yet a consideration of it in the detail of the subsidiary questions that have just been mentioned will not only secure the clearness requisite to an intelligent answer, but will bring the real depth of its interest into view, and will show this to be no less profound, while it is far more comprehensive than that of the former problem. It is for this reason that I venture to offer the reflections that have passed in my own mind in the endeavor to clear up the detailed questions that the general problem involves.

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In the hope of contributing something toward that definite apprehension of its bearings which is indispensable to any real and permanent effect of its discussion, I will proceed to consider those questions in their proper succession.

I. WHAT PANTHEISM IS.

Of the several questions that I have specified, perhaps none is surrounded with such vagueness and obscurity as the first—What *is* pantheism? The generally recognized defenders of religion, the theologians who speak with the hoary authority and with the weight of presumptive evidence that the traditional and, indeed, historic bodies of organized and instituted religion naturally impart, are in the habit of drawing a sharp *verbal* distinction between theism and pantheism, as they also do between theism and deism; but when the independent and unbiased thinker, anxious for clearness and precision, inquires after the *real* distinction intended by these names, he hardly finds it in any sense that awakened thought will recognize as at once intelligible and reasonable. We constantly hear that theism is contradicted by both deism and pantheism; by the one through its assertion of the divine personality at the expense of the divine revelation and providence; by the other through its assertion of the divine omnipresence at the expense of the separateness of the divine personality from the world. We hear constantly, too, that theism, to be such, must teach that there is a being who is *truly* God, or that the First Principle of the universe is a HOLY PERSON, who has revealed his nature and his will to his intelligent creatures, and who superintends their lives and destinies with an incessant providence that aims, by an all-pervading interference in the events of the world, to secure their obedience to his will as the sole sufficient condition of their blessedness. All this, however, is but an abstract and very vague formula, after all. Of the *quomodo* for reconciling the contradiction whose extremes are represented by the deism and the pantheism which it condemns it has nothing to say. *How* the divine personality is to be thought so as to comport with the divine omnipresence, or *how* the omnipresent providence of God is to be reconciled with his distinctness from the world, the general proclamation of orthodox theism has no power to show. And, when we pass from the general formula to the desired details, we are too

often then made aware that the professedly theistic doctrine is hampered up with a mass of particulars which are, in truth, profoundly at variance with its own principle; that confusion or contradiction reigns where clearness ought to be; that merely anthropomorphic and mechanical conceptions usurp the place of the required divine and spiritual realities. We discover, for instance, that, in the mechanical interpretation of theism, every doctrine is construed as deism that refuses its assent to a discontinuous and special providence, or to an inconstant, limited, and contra-natural revelation; and that, on the other hand, every theory is condemned as pantheism that denies the separation of God from the world, and asserts instead his omnipresent immanence in it. And we even find that, in the hands of such interpreters, theism is identified with the belief in mechanical and artificial theories of the *quomodo* of atonement, or, as such writers are fond of calling it, of "the plan of salvation." Into the rightful place of the sublime fact of the all-pervading providence and all-transforming grace that makes eternally for righteousness are set hypothetical explanatory schemes of expiation by sacrifice, of appeasal by the suffering of the innocent, of ransom by blood, of federal covenant and imputation, of salvation by faith alone; and the theories of the divine nature and administration which omit these details, or refuse to take them literally, are stamped as deism or as pantheism, even though the omission or refusal be dictated by a perception of the incompatibility of the rejected schemes with the fundamental principles of ethics, and, therefore, with the very nature of divine revelation. And thus, in the end, by mere confusion of thought and by inability to rise above conceptions couched in the limited forms of space and of time, the original theistic formula—which, in its abstract setting off of theism against deism and pantheism, is quite unobjectionable, and indeed, so far as it goes, entirely correct—is brought into contradiction with its own essential idea.

Still, it must never be forgotten that these ill-grounded efforts at the completer definition of theism are made in behalf of a real distinction. We shall not fail to find it true, I think, that there *is* a view of the world for which deism may be a very proper name, and another view which may most appropriately be called pantheism; that these are radically distinct from theism, defined

as the doctrine of a personal Creator who reveals himself by omnipresent immanence in the world, to the end of transforming it, through the agencies of moral freedom, into his own image, and of establishing a realm of self-determining persons, who freely and immortally do his will. Nor, as I believe, shall we fail to find that the doctrines named deism and pantheism are *historic* doctrines; that they are not merely conceivable abstractions, but have been advocated by actual men, of a very real persuasion and a very discernible influence. Nor can I doubt that these two doctrines, in their deviations from the theistic theory, will be recognized by our sound judgment as *defects*, and consequently be reckoned as injurious opinions. Only it must be understood that the sole ground of this judgment is to be our untrammelled rational conviction; and that if we were to find this conviction on the side of deism or of pantheism, we ought none of us to hesitate to take the one or the other as the sounder and more commendable view.

In asking, now, what pantheism exactly is, we may avail ourselves of a useful clue, for a beginning, in the apparent meaning of the name itself. The derivation of this from the two Greek words *pan*, all, and *theos*, God, would seem to make it mean either (1) that the All is God, or else (2) that God is all—that God alone really exists. The name, then, hints at two very distinct doctrines: it signifies either (1) that the mere total of particular existences is God; in other words, that the universe, as we commonly call it, is itself the only absolute and, real being; or (2) that God, the absolute Being, is the only real being—all finite existence is merely his transitory form of appearance, and is thus, in truth, illusion. We might convey the one or the other of these diverse doctrines by the name, according as we should pronounce it *pan*-theism or pan-*the*ism. In either way, the word may be made to cover an absolute identification of God and the universe. In the former way, God is merged in the universe; in the latter, the universe is merged in God.

And, in fact, pantheism, as an historic theory, has actually presented itself in these two forms. The doctrine has come forward in a considerable variety of expressions or schemes of exposition, such as those of Heraclitus, Parmenides, and the Stoics, in ancient times, not to speak of the vast systems lying at the basis of the Hindu religions; or those of Bruno and Vanini, Schelling (in his

early period), Oken, Schopenhauer, and Hartmann, in our modern era. But various as are these schemes, they may all be recognized as falling into one or the other of the two comprehensive forms which we have just seen to be suggested by the common name. These two forms may evidently be styled, respectively, the atheistic and the acosmic form of pantheism, as the one puts the sensible universe in the place of God, and thus annuls his being, while the other annuls the reality of the cosmos, or world of finite existences, by reducing the latter to mere modes of the being of the one and only Universal Substance. Both forms are manifestly open to the criticism visited upon pantheism by the standard defenders of theism—namely, that it contradicts the essence of the divine nature by sacrificing the distinctness of the divine personality to a passion for the divine omnipresence; the sacrifice of the distinctness, at any rate, is obvious, even if the incompatibility of such a loss of distinct being with the true nature of a godhead be not at first so evident; though that this loss *is* incompatible with a real divinity will, I think, presently appear. And both forms of pantheism are, in the last analysis, atheisms; the one obviously, the other implicitly so. The one may be more exactly named a physical or theoretical atheism, as it dispenses with the distinct existence of God in his function of Creator; the other may properly be called a moral or practical atheism, as, in destroying the freedom and the immortality of the individual, it dispenses with God in his function of Redeemer. Under either form, the First Principle is emptied of attributes that are vital to deity: in the first the *entire* proper and distinct being of God disappears; in the second, all those attributes are lost that present God in his adorable characters of justice and love, and in the ultimate terms of his omniscience and omnipotence. Perfect omniscience and omnipotence are only to be realized in the complete control of *free* beings, and the creation in them of the divine image by *moral* instead of physical influences.

II. THE RELATION OF PANTHEISM TO MATERIALISM AND IDEALISM.

It will aid us in a correct apprehension of pantheism if we appreciate its relations to other anti-theistic forms of philosophy, particularly to materialism, and to what is known as subjective idealism. It will become clear that it forms a higher synthesis of

thought than either of these. Its conception of the world may be read out either in materialistic or idealistic terms; and this is true whether we take it in its atheistic or its acosmic form. Yet, on a first inspection, this hardly seems to be the case. On the contrary, one is at first quite inclined to identify its first form with materialism outright, and to recognize in its second form a species of exaggerated spiritualism; and hence to contrast the two forms as the materialistic and the idealistic. Further reflection does not entirely do away with this mistake, for the apparent identity of atheistic pantheism with materialism is very decided; and the only correction in our first judgment that we next feel impelled to make, is to recognize the double character of acosmic pantheism. The one and only Universal Substance, in order to include an exhaustive summary of all the phenomena of experience, must be taken, no doubt, as both extending and being conscious. But is the Universal Substance an extended being that thinks? or is it a thinking being that apprehends itself under a peculiar mode of consciousness called extension? In other words, is the thinking of the one Eternal Substance grounded in and mediated by its extended being? or has its extension existence only in and through its thinking? Which attribute is primary and essential, and makes the other its derivative and function? Under the conception of the sole existence of the Absolute, the question is inevitable, irresistible, and irreducible. It thus becomes plain that, to say nothing of a third hypothesis of the mutually independent parallelism of the two attributes, acosmic pantheism may carry materialism as unquestionably as it carries idealism, though not, indeed, so naturally or coherently. And sharper inquiry at last makes it equally clear that atheistic pantheism will carry idealism as consistently as it carries materialism, if doubtless less naturally. For, although in the sum-total of the particular existences there must be recognized a gradation from such existences as are unconscious up to those that are completely conscious, and although it would be the more natural and obvious view to read the series as a development genetically upward from atoms to minds, still the incomprehensibility of the transit from the unconscious to the conscious cannot fail to suggest the counter-hypothesis, and the whole series may be conceived as originating ideally in the perceptive constitution and experience of the conscious members of

it. There is, however, a marked distinction between the two orders of idealism given, respectively, by the acosmic pantheism and by the atheistic: the former, grounded in the consciousness of the Universal Substance, has naturally a universal and, in so far, an *objective* character; the latter has no warrant except the thought in a particular consciousness, and no valid means of raising this warrant even into a common or general character, much less into universality; it is accordingly particular and *subjective.* Pantheism, then, in both its forms, is not only a more comprehensive view of the world than either materialism or any one-sided idealism, whether abstractly universal or only subjective, inasmuch as it makes either of them possible; but it is also a deeper and more organic view, because it does bring in, at least in a symbolic fashion, the notion of a universal in some vague sense or other. This advantage, however, it does not secure with any fulness except in the acosmic form. Indeed, the atheistic form is so closely akin to the less organic theories of materialism and subjective idealism that we may almost say we do not come to pantheism proper until we pass out of the atheistic sort and find ourselves in the acosmic. An additional gain afforded by pantheism, and eminently by acosmic pantheism, is the conception of the intimate union of the First Principle with the world of particular phenomena; the creative cause is stated as spontaneously manifesting its own nature in the creation; it abides immanently in the latter, and is no longer conceived as separated from it and therefore itself specifically limited in space and in time, as it is conceived in the cruder dualistic and mechanical view of things, with which human efforts at theological theory so naturally begin.

III. THE CONTRAST BETWEEN PANTHEISM AND DEISM.

At this point we strike the eminent merit of pantheism, as contrasted with deism. By the latter name it has been tacitly agreed to designate that falling short of theism which stands counter to pantheism. As the latter is defective by confounding God and the world in an indistinguishable identity, so deism comes short by setting God in an isolated and irreducible separation from the world. Deism thus falls partly under the same condemnation of materiality which a rational judgment pronounces upon sensuous theism, with its physically anthropomorphic conceptions of the

Creator, dwelling in his peculiar quarter of space called Heaven, and its mechanical theory of his communication with the world by way of "miracle" alone—by way, that is, independent, and even subversive, of the ordered process of means and end in nature.[1] But while thus suffering from mechanical limitations in thought, deism must still be allowed its relative merit, too. That merit is the criticism which it makes upon the mechanical method of physically anthropomorphic theism. If, in the interest of distinguishing the Creator from the creation, God is to be thought as capable of existing without a world, and as *separated* from the creation, then, as deism justly says, it is purely arbitrary to declare the separation overcome by means of mechanical miracle. Consistency, and, in so far, rationality, would rather require that the separation be kept up; and the folly of the anthropomorphic dualism is made to display itself in the deistic inference, which it cannot consistently refute, that the divine revelation and providence, without which the practical religion indispensable to the reality of theism cannot have being, are, by the separateness of the divine existence, rendered impossible.

IV. THE PERMANENT INSIGHT CONTAINED IN PANTHEISM.

In approaching, then, the question, Why should pantheism be regarded as a doctrine to avoid? we must be careful not to neglect the fact that it plays a valuable and, indeed, an indispensable part in the formation of a genuine theological theory. It is the transitional thought by which we ascend out of the idolatrous anthropomorphism of sensuous theism into that complete and rational theism which has its central illumination in the realized truth of the divine omnipresence. In the immanence of God in the world it finds the true basis—the rational theory—of the divine perpetual providence; in his indwelling in the creature, as "the Light

[1] I must be understood here as reflecting only upon the popular thaumaturgical conceptions of the supernatural. The genuine doctrine of miracle has, to my mind, a speculative truth at its basis, profound and irrefragable; the truth, namely, that the causal organization of nature—the system of ever-ascending evolution from cause to differing effect—can never be accounted for in terms of the mere sensible antecedents, but requires the omnipresent activity of an immanent but supersensible, transcendent, rationally personal cause; and that the system of nature is therefore a Perpetual Miracle. The natural order flowing from this Miracle is, however, immutable and irreversible, and irreconcilable with the possibility of "miracle" in the vulgar sense.

which lighteth every man that cometh into the world," it finds a like basis and theory for the universal and perpetual divine revelation. Indeed, in this realized and now fully uttered omnipresence of God, and in God's active indwelling in the inmost spirit of man, it lays the rational foundation for the Perpetual Incarnation, the doctrine of the Divine Humanity; and, when Christianity sets the doctrine of the Triune God in the very centre of practical religion, pantheism prepares the way to vindicate it as the genuine interpreter of a rational theism. That the Eternal eternally generates himself in our higher human nature; that this Son of Man is truly and literally the Son of God, and the Son only begotten; that, by the discipline of life in worlds of imperfection, men, and through them the whole creation, ascend by devout faith (or fidelity) toward this Son, and, by his life, immortally unto God in the Holy Spirit—this, the epitome and essence of Christian theism, first becomes apprehended as a rationally natural truth in the insight which pantheism brings with it, that God is not separate from the world but immediately present in it, and that the distinction between the Creator and the creature, between the human soul and its redeeming God, can never be truly stated as a distinction in place and time, as a separation in space and by a period. And it is not until the pantheistic insight has been realized in our minds, whether by name or no it matters not, that we discover clearly that this fundamental religious truth, which none of us, upon reflection, would think of denying, and which in some sense we may rightly say we have always known, is effectually violated by our ordinary anthropomorphic conceptions.

V. THE PERMANENT DEFECT OF PANTHEISM.

But, while this permanent insight of pantheism must be carried up into all genuine theistic thought, it remains also true that it falls seriously short of the theological conception demanded by the highest practical religion. For the possibility of religion as a practical power in human life—the very conception of theism as an operative force in the spirit—depends not merely on the omnipresent existence and work of God, but upon the freedom (that is, the unqualified reality) and the immortality of man. Indeed, if the space permitted, it might clearly be shown, not only that man cannot be properly man apart from freedom, immortality, and

God, but that God cannot be properly God apart from man and man's immortality and freedom; in other words, that the self-existent, free perfection of the Godhead, by virtue of its own nature, demands for its own fulfilment the establishment and the control of a world that is God's own image; the *divine* creation must completely reflect the divine nature, and must therefore be a world of moral freedom, self-regulating and eternal. But this demand of a genuine theism pantheism cannot meet. Its theory, whether in the atheistic or in the acosmic form, lies in the very contradiction of human freedom and immortality. Indeed, we may say, summarily, that the distinction between theism and pantheism, even in the loftiest form of the latter, lies just in this—that theism, in asserting God, asserts human freedom and immortality; but that pantheism, while apparently asserting God to the extreme, denies his moral essence by denying the immortality and the freedom of man.

VI. WHY PANTHEISM IS A DOCTRINE TO BE DEPRECATED.

And now we see why pantheism is at war with the permanent interests of human nature. Those interests are wholly identified with the vindication of freedom and immortal life; and this not on the ground of the mere immediate desire we have for freedom and permanent existence, which would, indeed, be shallow and even unworthy of a rational being, but on the profound and never-to-be-shaken foundation laid by reason in its highest form of conscience. For, when this highest form of reason is thoroughly interpreted, we know that the value of freedom and immortality lies in their indispensableness to our discipline and growth in divine life. To no theory of the world can man, then, give a willing and cordial adhesion, if it strikes at the heart of his individual reality and contradicts those hopes of ceaseless moral growth that alone make life worth living. Not in its statement of the Godhead as the all and in all, taken by itself, but in its necessarily consequent denial of the reality of man—of his freedom and immortal growth in goodness—is it that pantheism betrays its insufficiency to meet the needs of the genuine human heart. It is true, to be sure, that this opposition between the doctrine of the One Sole Reality and our natural longings for permanent existence, or our natural bias in favor of freedom and re-

sponsibility, in itself settles nothing as to the truth or falsity of the doctrine. It might be that the system of nature—it might be that the Author of nature—is not in sympathy or accord with "the bliss for which we sigh." But so long as human nature is what it is, so long as we remain prepossessed in favor of our freedom and yearn for a life that may put death itself beneath our feet, so long will our nature reluctate, and even revolt, at the prospect of having to accept the pantheistic view; so long shall we inevitably draw back from that vast and shadowy Being who, for us and for our highest hopes, must be verily the Shadow of Death. Nay, we must go farther, and say that, even should the science of external nature prove pantheism true, this would only array the interests of science against the interests of man—the interests that man can never displace from their supreme seat in *his* world, except by abdicating his inmost nature and putting his conscience to an open shame. The pantheistic voice of science would only proclaim a deadlock in the system and substance of truth itself, and herald an implacable conflict between the law of nature and the law written indelibly in the human spirit. The heart on which the vision of a possible moral perfection has once arisen, and in whose recesses the still and solemn voice of duty has resounded with majestic sweetness, can never be reconciled to the decree, though this issue never so authentically from nature, that bids it count responsible freedom an illusion, and surrender existence on that mere threshold of moral development which the bound of our present life affords. Such a defeat of its most sacred hopes the conscience can neither acquiesce in nor tolerate. Nor can it be appeased or deluded by the pretext that annihilation may be devoutly accepted as self-sacrifice in behalf of an infinite "fulness of life" for the universe—a life in which the individual conscience is to have no share. In defence of this pantheistic piety, quoting the patriarch of many tribulations, in his impassioned cry, "Though He slay me, yet will I trust in Him!" is as vain as it is profane. This is only to repeat the fallacious paradox of those grim and obsolete sectarians who held that the test of a state of grace was "willingness to be damned for the glory of God." The spirit that truly desires righteousness longs with an unerring instinct for immortality as the indispensable condition of entire righteousness, and, when invited to approve its own im-

molation for the furtherance of the divine glory, will righteously answer as a noble matron, applying for admission to the Church, once answered the inquisitorial session of her Calvinistic society: "I am assuredly *not* willing to be damned for the glory of God; were I so, I should not be *here!*"

VII. THE PROFOUND INTEREST OF THE PANTHEISTIC PROBLEM.

This is what makes the question of pantheism, as a possible outcome of science, of such vital concern. Science is thus made to appear as the possible utterer of the doom of our most precious hopes, the quencher of those aspirations which have hitherto been the soul of man's grandest as well as of his sublimest endeavors, the destroyer of those beliefs which are the real foundation of the triumphs of civilization—of all that gives majesty and glory to history. To present universal nature as the ocean in which man and his moral hopes are to be swallowed up is to transform the universe for man into a system of radical and irremediable *evil*, and thus to make genuine religion an impossibility; and not only genuine religion, but also all political union and order, which stands, among the affairs and institutions of this world of sense, as the outcome and the image of the religious vision. Belief in the radical and sovereign goodness of the universe and its Author and Sustainer is the very essence of religious faith and of political fealty. It is impossible that either faith or fealty can continue in minds that have once come to the realizing conviction that the whole of which we form a part, and the originating Principle of that whole, are hostile, or even indifferent, not merely to the permanent existence of man, but to his aspirations after the fulness of moral life. A professed God who either cannot or will not bring to fulfilment the longing after infinite moral growth that has once arisen in his creature, is not, for such a creature, and cannot be, true God at all:

> "The wish that of the living whole
> No life may fail beyond the grave—
> Derives it not from what we have
> The likest God within the soul?
>
> . . . . . .
>
> "And he, shall he—

"Man, the last work, who seemed so fair,
Such splendid purpose in his eyes,
Who rolled the psalm to wintry skies,
Who built him fanes of fruitless prayer—

"Who trusted God was love indeed,
And love Creation's final law,
Though Nature, red in tooth and claw
With ravine, shrieked against his creed—

"Who loved, who suffered countless ills,
Who battled for the True, the Just—
Be blown about the desert dust,
Or sealed within the iron hills?

"No more?—A monster, then, a dream,
A discord! Dragons of the prime,
That tare each other in their slime,
Were mellow music, matched with him!"

It is this profound feeling, which Tennyson has thus so faithfully expressed, that gives to the question before us in these days its anxious import. Let us not fail to realize that pantheism means, not simply the all-pervasive interblending and interpenetration of God and the creation, but the sole reality of God, and the obliteration of freedom, of moral life and of immortality for man.

VIII. WHY SHOULD MODERN SCIENCE GIVE ALARM OF PANTHEISM?

It is urgent, then, to inquire if there is anything in the nature of modern science that really gives color to the pantheistic view. It is obvious enough that there are not wanting philosophers, or even schools of philosophy, who read pantheism in science as science appears to them. But the real question is: Is such a reading the authentic account of the teachings of science itself? Here we must not mistake the utterances of men of science for the unadulterated teachings of science; for, on this borderland of science and philosophy, it need not be surprising if men familiar with only that method of investigation which science pursues, and not at home in the complex and varied history of philosophical speculation, should sometimes, or even often, be inclined to a hasty in-

ference when the borderland is reached, and, overlooking the fact that their science and its method have necessary limits, take that view in philosophy which the illegitimate extension of their method would indicate. Disregarding, then, the mere opinions of certain cultivators of science, we are here to ask the directer, more searching and more pertinent question, What is there—if, indeed, there be anything—in the nature of science itself, as science is now known—what are the elements in it and in its method, that might be taken to point toward a pantheistic interpretation of the universe and its Source?

And to this it must in all candor be answered that, both in the method of modern science and in the two commanding principles that have legitimately resulted from that method, there is that which unquestionably *suggests* the pantheistic view. Nothing less than the most cautious discrimination, founded on a precise and comprehensive knowledge of the course of philosophical inquiry, can detect the exact reach, the limits, and the real significance of this suggestion, or expose the illegitimacy of following it without reserve. The trait to which I am now referring in the *method* of science is its rigorously experimental and observational character; indeed, its strictly empirical or tentative character. And the two commanding *results*, which now in turn play an organizing part in the subsidiary method of all the sciences, are (1) the principle of the conservation of energy, and (2) the principle of evolution manifesting itself in the concomitant phenomenon of natural selection—the struggle of each species with its environment for existence, and the survival of the fittest. The apparent implications of this method and of these two principles accordingly deserve, and must receive, our most careful present attention.

How, then, does the experimental, or, more accurately, the empirical, method of science suggest the doctrine of pantheism? By limiting our serious belief to the evidence of experience—exclusively to the evidence of the senses. The method of science demands that nothing shall receive the high credence accorded to science, except it is attested by the evidence of unquestionable presentation in sensible experience. All the refinements of scientific method—the cautions of repeated observation, the probing subtleties of experiment, the niceties in the use of instruments of precision, the principle of reduction to mean or average, the allow-

ance for the "personal equation," the final casting out of the largest mean of possible errors in experiment or observation, by such methods, for instance, as that of least squares—all these refinements are for the single purpose of making it certain that our basis of evidence shall be confined to what has actually been present in the world of sense; we are to know beyond question that such and such conjunctions of events have *actually* been present to the senses, and precisely *what* it is that thus remains indisputable fact of sense, after all possible additions or misconstructions of our mere thought or imagination have been cancelled out. Such conjunctions in unquestionable sense-experience, isolated and purified from foreign admixture by carefully contrived experiment, we are then to raise by generalization into a tentative expectation of their continued recurrence in the future—*tentative* expectation, we say, because the rigor of the empirical method warns us that the act of generalization is a step beyond the evidence of experience, and must not be reckoned any part of science, except as it continues to be verified in subsequent experience of the particular event. Thus natural science climbs its slow and cautious way along the path of what it calls the laws of nature; but it gives this name only in the sense that there has been a constancy in the conjunctions of past experience, a verification of the tentative generalization suggested by this, and a consequent continuance of the same tentative expectancy, which, however, waits for renewed verification, and refrains from committing itself unreservedly to the absolute invariability of the law to which it refers. Unconditional universality, not to say necessity, of its ascertained conjunctions, natural science neither claims nor admits.

Now, to a science which thus accepts the testimony of experience with this undoubting and instinctive confidence that never stops to inquire what the real grounds of the possibility of experience itself may be, or whence experience can possibly derive this infallibility of evidence, but assumes, on the contrary, that the latter is underived and immediate—to such a science it must seem that we have, and can have, no verifiable assurance of any existence but the Whole—the mere aggregate of sense-presented particulars hitherto actual or yet to become so. Thus the very method of natural science tends to obliterate the feeling of the transcendent, or at least to destroy its credit at the bar of disciplined judg-

ment, and in this way to bring the votary of natural investigation to regard the Sum of Things as the only reality.

On this view, the outcome of the scientific method might seem to be restricted to that form of pantheism which I have named the atheistic. Most obviously, the inference would be to materialism, the lowest and most natural form of such pantheism; yet subtler reasoning, recognizing that in the last resort experience must be consciousness, sees, in the subjective idealism which states the Sum of Things as the aggregate of the perceptions of its conscious members, the truer fulfilment of the method that presupposes the sole and immediate validity of experience. But beyond even this juster idealistic construction of atheistic pantheism—beyond *either* form of atheistic pantheism, in fact—the mere method of natural science would appear to involve consequences which, even granting the legitimacy of belief in the transcendent, would render the transcendent God the sole reality—that is, would bring us to acosmic pantheism. For the empirical method, so far from vindicating either the freedom of the personal will or the immortality of the soul, withholds belief from both, as elements that can never come within the bounds of possible experience; so that the habit of regarding nothing but the empirically attested as part of science dismisses these two essential conditions of man's reality beyond the pale of true knowledge, and into the discredited limbo of unsupported assumptions.

It is, however, not until we pass from the bare method of natural science to its two great modern consequences, and take in their revolutionary effect as subsidiaries of method in every field of natural inquiry, that we feel the full force of the pantheistic strain which pulls with such a tension in many modern scientific minds. It is in the principle of the conservation of energy, and in that of evolution, particularly as viewed under its aspect of natural selection, that we encounter the full force of the pantheistic drift. And it seems, at the first encounter, irresistible. That all the changes in the universe of objective experience are resolvable into motions, either molar or molecular; that, in spite of the incalculable variety of these changes of motion, the sum-total of movement and the average direction of the motions is constant and unchangeable; that an unvarying correlation of all the various modes of motion exists, so that each is convertible into its correlate at a constant

numerical rate, and so that each, having passed the entire circuit of correlated forms, returns again into its own form undiminished in amount: all this seems to point unmistakably to a primal energy—a ground-form of moving activity—one and unchangeable in itself, immanent in but not transcendent of its sum of correlated forms, while each instance of each form is only a transient and evanescent mode of the single reality. Nor, apparently, is this inference weakened by the later scholium upon the principle of the conservation of energy, known as the principle of the dissipation of energy. On the contrary, the pantheistic significance of the former principle seems to be greatly deepened by this. Instead of a constant whole of moving activity, exhibited in a system of correlated modes of motion, we now have a vaster correlation between the sum of actual energies and a vague but prodigious mass of potential energy—the "waste-heap," as the physicist Balfour Stewart has pertinently named it, of the power of the universe. Into this vast "waste-heap" all the active energies in the world of sense seem to be continually vanishing, and to be destined at last to vanish utterly: we shift, under the light of this principle of dissipation, from a primal energy, immanent, but not transcendent, to one immanent in the sum of correlated actual motions, and also transcendent of them. Very impressive is the view that here arises of a dread Source of Being that engulfs all beings; it is Brahm again, issuing forth through its triad Brahma, Vishnu, and Siva—creation, preservation, and annihilation—to return at last into its own void, gathering with it the sum of all its transitory modes. And let us not forget that the conceptions out of which this image of the One and All is spontaneously formed are the ascertained and settled results of the science of nature in its exactest empirical form.

When to this powerful impression of the principle of conservation, as modified by that of dissipation, we now add the proper effect of the principle of evolution, the pantheistic inference appears to gather an overpowering weight, in no way to be evaded. As registered in the terms of a rigorous empirical method, evolution presents the picture of a cosmic Whole, constituted of varying members descended from its own primitive form by differentiations so slight and gradual as not to suggest difference of origin or distinction in kind, but, on the contrary, to

indicate clearly their kinship and community of origin. Still, these differentiations among the members, and the consequent differences in their adaptation to the Whole, involve a difference in their power to persist amid the mutual competition which their common presence in the Whole implies. In this silent and unconscious competition of tendencies to persist, which is called, by a somewhat exaggerated metaphor, the struggle for existence, the members of the least adaptation to the Whole must perish earliest, and only those of the highest adaptation will finally survive. So, by an exaggeration akin to that of the former metaphor, we may name the resulting persistence of the members most suited to the Whole the survival of the fittest; and as it is the Whole that determines the standard of adaptation, we may also, by figuratively personifying the Whole, call the process of antagonistic interaction through which the survivors persist a process of natural selection. Here, now, the points of determinative import for inference are these: that the "survival" is only of the *fittest to the Whole;* that it is the Whole alone that "selects"; that no "survival," as verified to the strictly empirical method, can be taken as permanent, but that even the latest must be reckoned as certified only to date, with a reservation, at best, of "tentative expectancy" for hope of continuance; that "natural selection," *as empirically verified*, is a process of cancellation, a selection only to death; and that the Whole alone has the possibility of final survival. The "tentative expectation" founded on the entire sweep of the observed facts, and not extended beyond it, would be that the latest observed survivor, man, is destined, like his predecessors, to pass away, supplanted by some new variation of the Whole, of a higher fitness to it. And so on, endlessly.

This clear pointing, by an empirically established and empirically construed doctrine of evolution, toward the One-and-All that swallows all, seems to gain further clearness still when the principles of conservation and of evolution are considered, as they must be, in their inseparable connection. They work in and through each other. Conservation and correlation of energy, and their "rider" of dissipation, are in the secret of the mechanism of the process of natural selection, with its deaths and its survivals; evolution is the field, and its resulting forms of existence, more and more complex, are the outcome of the operations of the cor-

related, conserved, and dissipated energies; and, in its principle of struggle and survival, evolution works in its turn in the very process of the correlation, dissipation, and conservation of energy. It therefore seems but natural to identify the potential energy—the "waste-heap" of power—of correlation with the Whole of natural selection. And thus we appear to reach, by a cumulative argument, the One and Only in which all shall be absorbed.

If we now add to these several indications, both of the method and of the two organic results of modern science, the further weighty discredit that the principles of conservation and evolution appear to cast upon the belief in freedom and immortality, the pantheistic tone in modern science will sound out to the full. This discredit comes, for human free-agency, from the closer nexus that the correlation of forces seems plainly to establish between every possible human action and the antecedent or environing chain of events in nature out of which the web of its motives must be woven; and from the pitch and proclivity that must be transmitted, according to the principle of evolution, by the heredity inseparable from the process of descent. For immortality, the discredit comes, by way of the principle of evolution, through its indication, under the restrictions of the empirical method, of the transitoriness of all survivals, and through its necessary failure to supply any evidence whatever of even a *possible* survival beyond the sensible world, with which empirical evolution has alone to do; while, by way of the principle of the conservation and dissipation of energy, the discredit comes from the doom that manifestly seems to await all forms of actual energy, taken in connection with the general discredit of everything unattested by the senses, which the persistent culture of empiricism begets.

In short, while the empirical method ignores, and must ignore, any supersensible principle of existence whatever, thus tending to the identification of the Absolute with the Sum of Things, evolution and the principle of conservation have familiarized the modern mind with the continuity, the unity, and the uniformity of nature in an overwhelming degree. In the absence of the conviction, upon independent grounds, that the Principle of existence is personal and rational, the sciences of nature can hardly fail, even upon a somewhat considerate and scrutinizing view, to convey the impression that the Source of things is a vast and shadowy

Whole, which sweeps onward to an unknown destination, "regardless," as one of the leaders of modern science has said, "of consequences," and unconcerned as to the fate of man's world of effort and hope, apparently so circumscribed and insignificant in comparison.

IX. MODERN SCIENCE IS, STRICTLY, NON-PANTHEISTIC.

But now that we come to the closer question, whether this impression is really warranted, we stand in need of exact discrimination. With such discrimination we shall find that, decided as the inference to pantheism from the methods and principles just discussed seems to be, it is, after all, illegitimate.

Our first caution here must be to remember that it is not science in its entire compass that is concerned in the question we are discussing. It is only "modern science," popularly so called—that is, science taken to mean only the science of nature; and not only so, but further restricted to signify only what may fitly enough be described as the *natural* science of nature; that is, so much of the possible knowledge of nature as can be reached through the channels of the senses; so much, in short, as will yield itself to a method strictly observational and empirical.

Hence, the real question is, whether empirical science, confined to nature as its proper object, can legitimately assert the theory of pantheism. And with regard now, first, to the argument drawn with such apparent force from the mere method of natural science, it should be plain to a more scrutinizing reflection that shifting from the legitimate *disregard* of a supersensible principle, which is the right of the empirical method, to the deliberate assumption that there *is* no such principle, because there is and can be no sensible evidence of it, is an abuse of the method in question—an unwarrantable extension of its province to decisions lying by its own terms beyond its ken. This shifting is made upon the assumption that there can be no science founded on any other than empirical evidence. That there is, and can be, no science deserving the name, except that which follows the empirical method of mere *natural* science, is a claim which men of science are prone to make, but which the profoundest thinkers the world has known—such minds as Plato, or Aristotle, or Hegel—have certainly pronounced a claim unfounded, and, indeed, a sheer assump-

tion, contradicted by evidence the clearest, if oftentimes abstruse. When, instead of blindly following experience, we raise the question of the real nature and the sources of experience itself, and push it in earnest, it then appears that the very possibility of the experience that seems so rigorously to exclude supersensible principles, and particularly the rational personality of the First Principle, is itself dependent for its existence on such Principle and principles; that, in fact, these enter intellectually into its very constitution. But, in any case, this question of the nature of experience, of the limits of possible knowledge, and whether these last are identical with the limits of possible experience, is one in the taking up of which we abandon the field of nature and enter the very different field of the theory of cognition. In this, the pursuer of natural science, as such, has not a word to say. Here his method is altogether insufficient and unavailing; if the problem can be solved at all, it can only be by methods that transcend the bounds of merely empirical evidence.

So, again, in the inferences to pantheism from the conservation of energy and the principle of evolution. Strong as the evidence seems, it arises in both cases from violating the strict principles of the natural scientific method. All inferences to a whole of potential energy, or to a whole determinant of the survivals in a struggle for existence, are *really* inferences—passings beyond the region of the experimental and sensible *facts* into the empirically unknown, empirically unattested, empirically unwarranted region of supersensible *principles*. The exact scientific truth about all such inferences, and the supposed realities which they establish, is, that they are unwarranted by natural science; and that this refusal of warrant is only the expression by natural science of its incompetency to enter upon such questions.

Natural science may therefore be said to be silent on this question of pantheism; as indeed it is, and from the nature of the case must be, upon all theories of the supersensible whatever—whether theistic, deistic, or atheistic. Natural science has no proper concern with them. Science may well enough be said to be *non*-pantheistic, but so also is it non-theistic, non-deistic, non-atheistic. Its position, however, is not for that reason anti-pantheistic any more than it is anti-theistic, or anti-deistic, or anti-atheistic. It is rather *agnostic*, in the sense, that is, of declining to affect knowl-

edge in the premises, because these are beyond its method and province. In short, its agnosticism is simply its *neutrality*, and does not in the least imply that agnosticism is the final view of things. The investigation of the final view, the search for the First Principle, science leaves to methods far other than her own of docile sense-experience—methods that philosophy is now prepared to vindicate as higher and far more trustworthy. Yet, when once the supersensible Principle is reached in some other way—the way of philosophy, as distinguished from that of natural science—science will then furnish the most abundant confirmations, the strongest corroborations; the more abundant and the stronger in proportion as the First Principle presented by philosophy ascends, evolution-wise, from materialism, through pantheism, to rational theism. For science *accords* most perfectly with the latter, although she is, in herself, wholly unable to attain the vision of it. But it must be a theism that subsumes into its conceptions of God and man all the irrefutable insights of materialism, of deism, and, eminently, of pantheism; of which, as I will hope this paper has shown, there are those of the greatest pertinence and reality, if also of the most undeniable insufficiency.

THE FACTS ABOUT EXTERNAL PERCEPTION.

BY PAYTON SPENCE.

Everybody admits the existence of the external world; but philosophers differ in opinion as to what that thing is which they, in common with everybody else, call the external world. People in general, when they speak of the external world, mean something outside of and separate and apart from themselves. The Idealist believes that the external world is simply our sensations, which somehow become external perceptions, still remaining sensations, however; and that, therefore, the outness and otherness of things is apparent, not real. The Realist believes that our sensations are one thing, while the external world is quite another thing, having an existence of its own outside of the mind, separate and apart from our sensations, existing though sensation had never come

into being, enduring though sensation should cease, and persisting though the possibility of sensation were abolished forever.

If, therefore, the existence of something outside of, and separate and apart from, our sensations is made as certain as the existence of those sensations themselves, Idealism must be abandoned. In that event, while it might be interesting and highly important, on other considerations, to know what that something is, yet it is obvious that, so far as the question of Idealism and Realism is concerned, such knowledge is unimportant. It would not be necessary to demonstrate any of its qualities or properties, or that it has qualities or properties, although I shall endeavor to do both. Its simple existence, if made as certain as the existence of our sensations, is a refutation of Idealism.

Furthermore, it is, of course, unimportant what name we give to that something which is separate and apart from our sensations. We may call it matter, or force, or spirit, or any other imaginable name; if its existence is proved, Realism must be accepted. Hence, Berkeley, and those who, with him, believe that the Deity is the objectifying, externalizing agency to our sensations, are, in fact, Realists. On that theory, the Deity is the something which is separate and apart from our sensations, and which objectifies them, not in any arbitrary, hap-hazard way, but only on certain conditions, and according to a fixed, ascertainable method; and hence, when we ascertain those conditions and formulate that method, we have put the subject into scientific shape; and then it is very evident that, as science, it is godless, and, of course, nothing has been gained by calling the objectifying agent Deity —matter, force, spirit, or any other name would have answered as well.

I may here further remark that, of course, Realism is not necessarily Dualism. It does not necessarily follow that the something which is separate and apart from our sensations is matter as an ultimate, distinct from mind as an ultimate, and that, therefore, there are two ultimates, matter and mind. My own views upon this point I have explained in my "New Theory of Consciousness" (see "Journal of Speculative Philosophy," July, 1880), in which I have endeavored to show that the atom of matter is an ultimate of consciousness, and that consciousness, therefore, is our ultimate cosmical constituent.

In this article I shall use the terms external world, external object, and object in the realistic sense; not, however, to prejudge the case, but simply to give a uniform, definite meaning to words which I shall have frequent occasion to use.

In the outset of our discussion of external perception, we find it necessary to disabuse the mind of the reader of one of the errors which encumber the subject—an error which everybody seems to regard as a truth established beyond all contradiction. It is well enough expressed in the following quotation from Lewes, in which, however, it is mixed up with another error that is almost as universal, and to which we shall presently call special attention, namely, the erroneous belief that a single sensation can give us a perception: "I burn myself in the fire; I am conscious of the sensation; I have certain and immediate knowledge of that. But I can only be certain that a change has taken place in my consciousness; when from that change I infer the existence of an external object (the fire) my inference may be correct, but I have obviously shifted my ground. Consciousness—my principle of certitude—forsakes me. I go out of myself to infer the existence of something which is not self. My knowledge of the sensation was *immediate*, indubitable. My knowledge of the object is *mediate*, uncertain. Directly, therefore, we leave the ground of consciousness for inference, avenues of doubt are opened." It will be seen that the above statement is made in a positive, unquestioning form, as though the truth of it was not for a moment to be doubted, either by himself or any one else; and yet the whole science of demonstrated mathematics protests against it as an untruth that will not stand a moment's investigation. A demonstrated proposition of geometry is just as certain and indubitable as any one of the simple intuitions of which that demonstration consists; and yet our knowledge of the proposition is always *mediate*, while our knowledge of the intuition is *immediate*. The error amounts to this: that there is no absolute certainty of anything except that which lies directly and immediately upon our consciousness, as is the case with our sensations and all self-evident truths; as, for instance, when I look at a line which is divided into parts, and see that one of those parts is less than the whole. Now, a demonstrated truth does not and cannot, in that sense, lie directly and immediately upon our consciousness. In other words,

it is not a sensation; we cannot see it, feel it, taste it, or apprehend it by any of our senses; nor can we grasp it with our consciousness directly and immediately, even as a perception or as a conception, as we shall show more fully hereafter. We can only know it by memory as a proposition the truth of which has already been demonstrated, or else we must know it by going through the demonstration. Could we grasp it as a perception or as a conception, and thus know it of itself and by itself, directly and immediately, it would not need a demonstration.

The erroneous belief that we cannot be certain of anything except that which we know *immediately*, is the cause, on the one hand, of those immense, desperate, and persistent, but futile efforts that have been made in the endeavor to prove that we do know the external world *immediately;* and, on the other hand, of that despondent and hopeless surrendering of the question as one which is utterly insoluble, either because our perception of the external world is a result of the direct but inscrutable action of the Deity, or else because it is an ultimate fact, incapable of further analysis. Furthermore, the erroneous opinion to which we are calling attention has its effect upon those who believe that our knowledge of the external world is *mediate;* it destroys the value of the conclusion which they have reached and leaves them burdened with the conviction that the existence of the external world is still problematic and uncertain.

The sum of the angles made by the crossing of the two straight lines before me, is equal to four right angles. Of this I am as certain as I am that the upper part of one of those lines is less than the whole line. The propositions are both absolutely true. One of them is self-evidently true; the other is demonstratively true. The truth of the one I reach immediately by a single intuition; the truth of the other I reach mediately by a series of intuitions. I cannot escape from the truth of either. Similarly, I am as certain that external objects exist, separate and apart from my sensations, as I am that my sensations themselves exist. The latter certainty is the certainty of a single intuition; the former certainty is the certainty of a series of intuitions. The one is a self-evident truth, the other is a demonstrated truth; therefore I cannot escape from the truth of either. Being both truths, they have not permitted, and will never permit, the human mind to

rest contented with any theory of external perception which does not admit them both as unquestionable facts.

The subject of external perception is encumbered by another fundamental error. It is believed by many that every sensation is spontaneously converted into a perception, or causes a perception; that this happens in some mysterious way, without the aid or prompting of any cause other than the *single* sensation itself, operating through an original principle of our constitution—in other words, that a sensation necessarily and unavoidably becomes or causes a perception as necessarily and unavoidably as an impression upon an organ of sense becomes a sensation. As we have seen, the erroneous doctrine of *immediate* perception is an outgrowth of the fundamental error that we cannot be certain of anything except that which we know immediately. Now, the erroneous theory of immediate perception necessarily gives rise to the false opinion that a single sensation can, and always does, of itself, become or cause a perception. We shall undertake to show hereafter, however, that a single sensation does not and cannot become a perception or cause a perception, or be itself thrown to the external, either in reality or in appearance, as it is in perception; for, without an understanding of this fact, it is not possible to understand the fundamental difference between a sensation and a perception, and their true relations to each other; and hence it is not possible to understand external perception.

The erroneous opinion that has been, and still is, entertained upon this subject, and that must necessarily be entertained by every one who holds the doctrine of immediate perception, is thus expressed by Brown: "Certain sensations irresistibly, and by a law of our nature, suggest, without any process of reasoning and without the intervention of any *tertium quid*, the notion of something external and an invincible belief in its real existence." Reid expresses substantially the same opinion in many places, as in the following instance: "But every such impression, by the laws of the drama, is followed by a sensation, which is the first scene exhibited to the mind; and this scene is quickly succeeded by another, which is the perception of the object." It seems to me that Spencer also drops into this error when he says: "In sensation proper, at least if it is a sensation of touch, heat, or pain, I not only contemplate the affection as an affection of myself—as a

state through which my consciousness is passing or has passed—but I also contemplate it as existing in a certain part of my body, as standing in certain relations of position. I perceive where it is. But, though under both these aspects sensation must be regarded as a species of perception, it will readily be seen to differ widely from perception proper."

I shall not undertake a *special* refutation of the above view of sensation, but shall proceed at once to the consideration of our subject, external perception, beginning, however, with an account of sensation with which it is so intimately connected, and upon which it is dependent. If my explanation of sensation and of its relations to perception be correct, it becomes a refutation of the foregoing erroneous view of the subject just to the extent that it differs from that view; and it will be found to differ from it fundamentally.

Every sensation is a state of consciousness; as such it is internal and must ever remain internal; by no possibility can it be made external. Now, aside from our sensations, there are no other means or instrumentalities by which we can know the external world; but, as our sensations are wholly internal and incapable of being shifted to the external, how is it possible that we can ever know anything about an external world? And how is it possible even that the thought or conception of an external world should ever have entered the human mind? Yet, while it is a fact that all our affections through the senses are wholly internal, and can never be made other than internal, it is equally a fact that, in some way, the idea of an external world has got into our consciousness, and has taken such forcible possession, assuming such dominion there, that it gives its own character even to our sensations, making them seem as external as itself. That apple out there is somehow embraced by my consciousness as an external thing—an object outside of and apart from myself—and that externality is so pronounced, so overpowering a reality, that the red color, which is naught but an internal sensation and must ever remain internal, is apparently drawn out of its real abiding-place, and seems painted upon the surface of the apple, as objective as the apple itself. How is this?

It is not an easy matter to get a clear conception of what a sensation really is. We seldom, if ever, have a sensation alone as a

conscious experience, standing apart from all other sensations and perceptions so as to reveal its true character. Every single sensation automatically relates itself to an object and object properties and to groups of other sensations, actual and reproduced, thus giving rise to a perception in which the sensation is seemingly localized as something exterior to the mind—something objective. This seeming objectivity does not pertain to a sensation proper, but does pertain necessarily, as we shall show, to any sensation which forms part of a perception. Therefore, when we localize a sensation, we give it an element that does not belong to it—an element which, to that extent, converts it into a perception, or rather a part of a perception. As the outcome of animal evolution, our nervous system is so organized that it is almost impossible for us to experience a sensation proper; that is, a sensation which is not automatically localized—objectified. We are compelled, therefore, to resort to a process of mental dissection, as it were, separating this simple mental state from others with which it is ordinarily so bound up as to be in a great measure disguised. To do this, we must defeat, as it were (and reject results where we cannot defeat processes), those automatic actions of our highly developed nervous system by which every sensation is at once related to an object and its properties and to other sensations, actual or reproduced, and thus becomes localized as a part of a perception. Many sensations, probably most of our sensations, cannot be treated experimentally in this way, so irresistibly and unavoidably does our nervous system work them up into perceptions; nor can we devise any method by which we can arrest the process at that stage where we are conscious of them as sensations only, and before they have been worked up into perceptions.

I obliterate, in imagination, all the results of my past experience, together with the experience itself, and the power of remembering or reproducing it, either voluntarily or spontaneously; and, furthermore, I imagine that I am deprived of all my faculties and capacities except the sense of sight. In this imaginary state I close my eyelids, and am immersed in light alternating with darkness. The light that reaches the retina of my eye causes me to experience what would be called a consciousness of light. But to call it a consciousness of light would make it more complex than it really is, by implying that there are two mental states;

that is, the sensation, light, and a consciousness of that light. It is more in keeping with the simplicity of the phenomenon to call it a state of conscious illumination, the illumination and the consciousness being one and the same thing. While that state lasts, illumination is the plenitude of the mind—the sum total of the ego—so that I am, for the time being, simply a conscious illumination, not a consciousness of an illumination, but a consciousness which is illumination, an illumination which is consciousness. This is a sensation.

You are looking at a red apple, the red of which seems to you as external as the apple itself. I, in the imaginary state just described, open my closed eyelids, and how is my consciousness affected by the apple? Only the light from it affects me, and I have a sensation called red. The sum total of my being is a state of consciousness called red. I know nothing of the apple; I only feel red; and it is not a red which I refer to something that is distinct from myself; but I myself am the red, and that is all there is of me; beyond that, I know nothing, feel nothing, infer nothing, am nothing. To you the red is out there, external, a part of the apple; to me the red is internal, and is a part of me—is me. Here, then, there is seemingly a vast difference between your red and my red; between the red which seems outside of you as a part of an external object, and the red which is inside of me—is me. Yet these two reds, in their real nature, are precisely alike; they are precisely the same subjective states, and can never be otherwise; and when we shall have made this plain, and shall also have shown the genesis of your red from my red, we shall have made considerable progress in the solution of the difficulties involved in external perception. My red, the subjective red, is of course a sensation, and nothing more. Your red, while remaining a subjective sensation, is a part of your perception of the apple, and to that extent may be spoken of, in brief, as a perception. In my case the red is felt; in your case it is felt also, because its real nature can never be changed; but, in addition to being felt, it seemingly loses its internal character, and is apparently projected to the external, and, being worked up into a perception, we may say it is perceived. To this extent, then, we see the difference between a sensation and what might be called a perception of a sensation, the latter being a sensation *plus* an appear-

ance of externality. Then the difficulty of this part of the subject is narrowed down to this question: How is this appearance of externality added to that which is essentially internal, and which must ever remain internal in reality? Mere sensations alone, singly or in combination, cannot make the addition, as is evident from the following considerations:

1st. Every *single*, *unrelated* sensation is essentially and unchangeably internal; hence, to put it in a negative form, no single, unrelated sensation can ever become external, either in reality or in appearance; and, therefore, it can never become a perception or a part of a perception. Such a change in its character cannot take place without a cause, and as, by the supposition, the sensation is single and unrelated, there is no cause for any change whatever; and hence it must remain internal in appearance as well as in reality.

2d. All sensations, being internal, no relation of the sensations of any one or more of the senses, can cause them to be projected to the external, either in reality or in appearance. All sensations are subjective; and hence all their relations to each other are relations in the subject, and, therefore, relations in time only; and, as there is nothing, and can be nothing, either in their nature or in the nature of their relations, to suggest the idea of space, they cannot be projected into space, either in reality or in appearance. The reader will please observe that I speak of the relations of *sensations only;* and he must therefore be careful not to introduce any other element into the relation but the bare sensations themselves, and whatever results from their relations; otherwise he may unconsciously mix up those sensations with the very thing which, as we shall see, gives them seeming objectivity, and he may thus delude himself into the belief that related sensations alone may become perceptions, or parts of perceptions.

Therefore we (Berkeley and Hume included) must look beyond mere sensation and related sensations for that something—that additional element in the combination—by which a sensation becomes a part of a perception, that is, a sensation *plus* seeming externality. Any analysis of perception into mere sensations or related sensations is incomplete, for the simple reason that the very *sine qua non* of perception is overlooked—that very element is omitted which, as we shall see, converts sensations into parts of

perceptions, and the perceived sensations *plus* that element into the perceived object. That omitted element, as we shall see, is the object itself, the very apple upon the surface of which the red seems painted. Therefore, we shall find that instead of mere sensations giving us external perception—in other words, instead of our related sensations becoming to us an object—instead of the redness, the sweetness, the fragrance, the touch, being combined into an apple, and constituting all there is of it, it is the object itself which externalizes the sensations; it is the real apple which makes your sensations, red, sweet, touch, fragrant, seem outside of you and grouped together into an apple. Well, we say, there is a real apple out there, existing as something separate and apart from our sensations; and we have shown that mere sensations, isolated, or simply related to themselves alone, cannot make us perceive that apple; then how is the real apple brought to our consciousness and made a thing of *knowledge*, seeing that it can only be done through the instrumentality of our sensations?

The law of the *object* in external perception is this: *In external perception, the simultaneous convergence of the sensations of two or more of the senses upon the source or cause of those sensations demonstrates the existence of that source or cause as a something —an object—which is separate and apart from the sensations themselves.* That such is the method by which we know the object I shall now endeavor to show.

Let us suppose that both you and I have all our senses abolished, and also all the knowledge and experience which we have acquired through them, as well as all the organized results of that experience. Now, I am suddenly endowed with the sense of smell and the sense of sight; I mean the faculty of feeling colors, lights, and shades, and, of course, I do not include the muscular sense which is ordinarily associated with the sense of sight, in the adjustment of the eye to distances, the convergence of the axis of the eyes, the rolling of the eye in and out, up and down, etc. I see a red color, and I smell a fragrance. But they give me no knowledge of anything but themselves and their relations in time, either as occurring simultaneously or in succession to each other. They cause in me no perception of an object—no perception, or even suspicion of the existence of the apple which causes both sensations; and, moreover, they give me no idea that the two sensa-

tions are, or can be, combined or related into an object—an apple. On the other hand, you are suddenly endowed with the sense of sight and the sense of feeling, together with the power of muscular motion, but not the muscular sense, as it is not necessary to the illustration. Through the sense of sight you also see the red color; at the same time you move your hand forward until you feel a touch just when your hand seems to reach the color. You perceive an object which, you say, looks red; and the red is seemingly no longer within yourself, but outside of you, apparently pertaining to the object itself—you perceive the red apple. Now, what is the reason of the vast difference between my experience, through the instrumentality of *two* sensations, and your experience, through the instrumentality of *two* sensations also—my experience in which my sensations remain internal in appearance as well as in reality, and in which no external object is inferred, suggested, suspected, or thought of, and your experience in which your sensations make you believe (we will call it *believe* for the present) that you have come upon something which is outside of yourself—an object, and that that object is red?

The only difference in the two cases is this: In your experience, the two sensations converge each upon the source or cause of the other, and thus *demonstrate* that source as something separate and apart from themselves, and therefore an external object. In my experience, the two sensations do not converge each upon the source or cause of the other; and hence they do not demonstrate or suggest anything beyond themselves. To return to your experience, for mine needs no further explanation. You see the red color; at the same time you move your hand forward until you believe that you feel the red with your fingers—no, you do not believe *that*, and could only be made to believe it by finding that what you reach feels red to your fingers as well as looks red to your eyes; and if you did believe that you touched the red, the sensation, with your fingers, you would give up your erroneous belief the moment you closed your eyes and still felt the touch, although the red, the sensation, then ceased to exist—well, you move your hand forward until you believe that you feel the place where the red is—no, you never can believe that you feel a mere place, or locality, or the nothingness of mere empty space—you move your hand forward, then, until you believe that you feel

the object which is red, and see the object which you touch. It is as though the hand said to the eye, "Follow me, and I will take you to the cause of that red which you see"; while the eye says to the hand, "I follow you, and show you the cause of that touch which you feel." The one demonstrates to the other a something which is foreign to them both, separate and apart from both—something which neither one alone could ever attain to or suspect the existence of.

But why call this process of making us conscious of the existence of an external object a *demonstration?* Simply because it is a demonstration. Demonstration is the method of bringing to our knowledge, by two or more intuitions, that which we cannot know by a single intuition. For instance; two triangles lie before me, and I am told that two angles and the included side of the one are equal to the two angles and the included side of the other; and I am further told that, such being the case, the two triangles themselves must be equal. Now, this latter equality I can never know by a single intuition—that is, by simply looking at the two triangles—in the same way that I know that the line before me, which is divided into parts, is greater than any one of its parts. Therefore I must demonstrate the equality of the triangles by a series of intuitions, each one of which, being absolutely certain, brings me to the absolute certainty that the triangles are equal. My first intuitive certainty is that the two equal sides, when applied to each other, coincide; my second and third intuitions are that the other two sides of each of the triangles must coincide with each other as far as we choose to produce them; and my fourth intuition is that those two sets of coinciding sides must meet in the same point; and now I know that the two triangles, when applied to each other, must coincide throughout, and are therefore equal. In no other way can I *know* that equality. Now, if I am told that an object is something separate and apart from my sensations, I cannot know that fact by a single intuition—I cannot see it, feel it, taste it, or grasp it *immediately* by any one of the senses. But I do know it by means of two or more intuitions which are so related to each other and to it that my knowledge of it is just as certain as my knowledge of the intuitions themselves—and hence it is demonstrated. But it will be said: "This object, which is thus brought to my knowledge, is such a shadowy

nothing, without properties, or with properties (which we shall presently show that it has) like itself, invisible, intangible, non-perceivable, and inconceivable; how can it be a demonstration?" We reply that in all these respects it resembles all demonstrated truths, they being just such shadowy nothings—invisible, intangible, non-perceivable, and inconceivable—as we shall have occasion to show hereafter.

Then, in external perception, the simultaneous convergence of two or more of the senses upon the common cause of their present sensations demonstrates the existence of that cause as an object separate and apart from those sensations. But the demonstrated object is only one of the elements of that compound phenomenon called an external perception. Its other elements will now engage our attention.

The consideration of the *primary* and *secondary* qualities of objects usually forms a part, and a very large part, of all discussions of the subject of external perception. Of course they are introduced into such discussions for the purpose of throwing some light upon a subject whose principles have thus far seemed hidden in the most impenetrable darkness. I believe, however, that every one who has studied what has been written about the primary and secondary qualities, in the hope of getting some light upon the subject of external perception, has ended his studies in vexation and disappointment, and has come to the conclusion, if he had not already reached it, that even the clearest and most profound thinkers unavoidably drift into disorder and confusion when they endeavor to explain a subject without the guidance of the true principle which underlies it.

Locke throws no light upon the subject of external perception by telling us that the primary qualities "are inseparable from body," while the secondary qualities are "nothing in the objects themselves, but powers to produce various sensations in us"; and "that the ideas of primary qualities are resemblances of them; and their patterns really exist in the bodies themselves; but the ideas produced in us by the secondary qualities have no resemblances to them at all." Reid throws no light upon external perception with his invalid reason for the baseless distinction that our knowledge of the primary qualities is "clear" and "distinct," while our knowledge of the secondary qualities is "obscure,"

because the notion we have of the former is "direct," while that of the latter is "relative" only. Stewart throws no light upon external perception by saying that "the line which I draw between the primary and secondary qualities is this, that the former necessarily involve the notion of extension or outness, whereas the latter are only conceived as the unknown causes of known sensations." Bain throws no light upon external perception, and, I may say, rather beclouds the subject when he makes *uniformity in experience* the characteristic of a primary quality, and therefore makes color barely escape being raised to the dignity of a primary quality, so that a little more uniformity in the experience of all persons with a color, for instance red (which, for want of that uniformity, is now a sensation, a subject quality), would convert it into an object (primary) quality. In fact, Bain's boundary-line between his object (primary) qualities and the subject qualities is so shadowy and indeterminate that he himself at times ignores it altogether, or else does not see it; as when he speaks of *resistance* as a *feeling*, and therefore a *subject* quality, and yet, at the same time, classes it with the *object* qualities by saying that "the fundamental properties of the material or object world are force, or *resistance*, and extension." Hamilton throws no light upon external perception by informing us that "in the primary qualities perception predominates; in the secondary, sensation"; that "where matter is known as principal" (it would have been a flash of light to have shown us how *matter* can be *known* at all with a *certainty*) "in its relation to mind, and mind only known as subordinate in its correlation to matter, we have perception proper, rising superior to sensation; this is seen in the primary qualities" (and yet where matter, or primary qualities, or both, predominate so much as to be left alone, they go blink out, and can neither be seen, nor felt, nor perceived, nor even conceived, as we shall see hereafter), "where, on the contrary, mind is principal," etc. Nor does Spencer throw any light upon external perception with his new nomenclature—statical, dynamical, and statico-dynamical—for substantially the same things that others call primary, secondary, and secundo-primary.

In discussing the primary and the secondary qualities, in their relation to external perception, the important matter to determine is this: Since we know both these sets of qualities through the in-

strumentality of our sensations, what are the conditions under which our sensations give us a knowledge of the primary qualities, and what are the conditions under which our sensations give us a knowledge (though it cannot be called knowledge) of the secondary properties, and what is the nature of that knowledge in both cases?

With regard to the secondary qualities, we have but little to say; first, because we do not *know* them; and, secondly, because they have no direct bearing upon our subject, since they take no part in external perception. We have already shown how our sensations are traced to their source in the demonstrated object. But of those properties in the object that cause the sensations we *know* nothing, either by intuition as we *know* the sensations themselves, or by demonstration as we *know* the object. We may conjecture and speculate about them; as, for instance, we may say that, perhaps, a red color and the object quality which causes it are as much alike as the two voices in the telephone—the one at the delivering end which is the cause, and the one at the receiving end which is the effect; but such conjectures and speculations can never amount to a *knowledge* of the secondary qualities of objects.

The primary qualities, of course, are always spoken of as qualities of the object and not of the subject; but we look in vain for any reason for such a disposition of them beyond, we may say, the very obvious fact that they are very different from our sensations; and, as the latter evidently pertain to the subject, it seems reasonable to conclude that the primary qualities pertain to the object. But, not understanding the true reason why the primary qualities must be qualities of the object and not of the subject, writers often speak of them as though, while being qualities of the object, they were still mere affections of our senses (subject qualities), which can be seen, felt, and otherwise known, in the same way that we see a color, feel a touch, or smell a fragrance. Hence Berkeley easily broke through their ill-defined distinctions and loose explanations; and, to this day, they have found it impossible to answer him, from their standpoint.

No single sensation or combination of mere sensations can give us a primary quality; it can only be demonstrated to us in the same way in which, as we have shown, the object is demonstrated

to us—namely, by the simultaneous convergence upon it of the sensations of two or more senses, thus proving that it really exists externally as an attribute of the object, and not as a sensation or a group of sensations pertaining to the subject. For the purpose of showing the correctness of our position, and also for the purpose of showing the confusion of thought which prevails on this subject (all for the want of a knowledge of the law of the primary qualities), I make the following extract from Hamilton, in which he endeavors to prove that the sensations of sight alone can give us a knowledge of the primary quality called *extension*. I shall criticise it as I go, begging the reader, however, to bear in mind that I am deprived of all my powers and faculties except the sense of sight alone, and that, when I say sight, I do not include the sense of the muscular contraction of the muscles of the eye, which is so intimately connected with it, and by which, in connection with the sense of sight, extension may be brought to our knowledge in the manner hereafter explained. The reader is also requested to hold *sensations* to their *true character* as mere subjective affections, and not to allow them to be tinctured with anything that pertains to *perceptions* only, as is apt to be done, in spite of himself, by that automatic action of his nervous system already referred to. In this condition Hamilton says to me:

"1. All are agreed that we see extension as colored." *We see extension!* I see (have the sensation called) red, and green, and blue, and yellow, and all the other colors, lights, and shades. I see nothing else, and can see nothing else. "2. The power of perceiving colors"—*perceiving colors!* What is that? I feel—have the sensation of—color; if perceiving means that, then I can understand you; but if it means something else, then I can never understand you. "The power of perceiving colors" (which I can never do) "involves the power of perceiving differences of color." Yes, if I could *perceive*, I could perceive; but I can only feel. "3. The colors discriminated in vision are, or may be, placed side by side." *Placed side by side*—what is that again? Have I got sides and places in me as well as sensations? *When* (I cannot say *where* yet) do they arise, and how? and how do they feel alone, or side by side? If when you say "placed side by side" you mean coming to my consciousness one after another in time, or one at the same time with another,

then I understand you; otherwise I do not, and cannot. "4. The contrasted colors, thus bounding each other, will form, by their meeting, a visible line." *Bounding each other*—yes, I understand—one beginning *when* the other ends (Hamilton would laugh, for he meant *where*, which word, however, when applied to one or more subjective states, would be sheer incompatibility). But, *visible line*, I do not understand that. Only colors, lights, and shades are felt by me; and I only know that in me (in my consciousness) they come and go one after another in time, or one at the same time with another. If *visible line* is any one of such experiences of mine, then I can be made to comprehend it; otherwise never.

The same process of reasoning implied in the foregoing criticism will apply to all sensations (mere sensations and nothing else), whether isolated or related to each other. Hence, the two negative propositions which we laid down in reference to the relation of sensations to perceptions will also apply to the relation of sensations to the primary qualities of objects, namely: 1. No single sensation can give us a primary quality. 2. No number of mere related sensations of any one or more senses can give us a primary quality. Should the reader still harbor any doubts of the truth of the foregoing propositions, he must surrender them if I succeed, as I expect to, in showing that the primary qualities are demonstrated qualities of the object, and, as such, are separate and apart from our sensations, as much so as the object itself, and therefore can never be seen, felt, tasted, or known *immediately* by any of the senses.

Put in the affirmative form, the law of the primary qualities is this: *A primary quality is a quality which is demonstrated to pertain to the object by the simultaneous convergence upon it of the sensations of two or more senses.* The sensations of color and of touch may be simultaneously converged so as to reveal to each other their common source—an object—and thus prove the object; but that does not necessarily imply a convergence upon any quality of the object; and hence, in that case, the object only is proved, not its qualities. But suppose that I am reduced, as in a former supposition, to the sense of sight alone, and have everything to learn. I see a red color. That is all I know about it, or about anything else. It tells me nothing. Now, I am further endowed with the sense of touch and the power of muscular motion, but

not the muscular sense, simply because the latter is not necessary to complete the illustration. I move my hand till I see that it touches the source of the red; and the red and the touch demonstrate the object, as already explained. Now, while I am looking at the red, I run my hand along over the surface of the object, and I *see* that my hand *feels* over that surface which is red, and I *feel* that the red which I *see* embraces the whole surface which gives me the sensation of touch; and thus extension is made known to me through the compound relation of the two sensations and the demonstrated object. The very first point at which sight and feeling converge is, by demonstration, a point of the object, not of the subject; and, as I move my hand along, each succeeding point is, by demonstration, a point of the object, not of the subject; and so the succession of points are, by demonstration, a succession of points in the object; and hence the succession of points—the extension—is a property of the object, not of the subject.

The same process of reasoning brings us to the conclusion that the primary quality called *solidity* is a quality of the object, not of the subject, and is demonstrated to be such by the convergence of two sensations, namely—that of touch, an affection of the sense of feeling, and that of resistance (force), an affection of the muscular sense.

In attempting to make out the genesis of our knowledge of this primary quality, *solidity*, the difficulties of the subject are very much increased by the absence of suitable terms that would help us to isolate, in thought, the two sensations, touch and resistance, and the primary quality, solidity, which they demonstrate. The terms *touch*, *resistance*, and *solidity* carry meanings which overlap each other, each one implying more or less of the import of both the others as well as its own; so that, in the popular mind, they are greatly entangled, the word touch implying more or less of resistance and solidity, resistance more or less of touch and solidity, and solidity more or less of touch and resistance. This tincturing of each with the meaning of the others follows the most cautious investigator in spite of himself, and, to a great extent, prevents him from perceiving the real relation of the phenomena which the words represent.

For the purpose of ridding the subject, as far as possible, of

this embarrassment, we would remind the reader that the meaning of the word *touch* must be limited to the simple sensation of contact, which may be best realized if the hand is at rest while the object is caused to come in contact with it; we thus free it of the muscular feeling of resistance, and also to some extent of the idea of solidity. The word *solidity* so obstinately carries with it the idea of both the feelings of touch and resistance by which the quality called solidity is demonstrated, that it is very difficult to think of it as a primary quality which, like extension, cannot be felt or seen at all. It does not stand apart in the mind from touch and resistance as distinctly as extension stands apart from color and touch. On this account, perhaps the term impenetrability would answer better than solidity; but impenetrability carries a non-technical meaning that is always obtruded upon the technical one, and it is objectionable on that account. The suggestion of the word will, at any rate, act as a corrective which will help us to hold the word solidity to the restricted meaning to which we wish to limit it—that is, to the primary quality, without any admixture either of the feeling of touch or of resistance. The word force, which is sometimes used as synonymous with our other term, *resistance*, might also act as a corrective to that term, and help us to hold it to the mere feeling of muscular contraction, isolated from the feeling of touch and from the idea of solidity. I deem it best, however, not to use the term at all, on account of the difficulty of restricting it as it should be. I shall therefore speak of the feeling of muscular contraction as the feeling of muscular contraction.

Now, my eyes being closed, if I bring my hand in contact with an object, the simple contact (when isolated from the feeling of muscular contraction by which it is brought about) gives me the sensation of touch; at the same time, the feeling of muscular contraction is abruptly modified the moment the feeling of touch begins; therefore the modified feeling of muscular contraction makes known to me the cause, the source of the sensation of touch, and the sensation of touch makes known to me the cause of the modification of the feeling of muscular contraction, and thus the object is demonstrated. Now, if, while the contact with the object continues, I increase the muscular effort, and thus intensify the feeling of muscular contraction, I at the same time intensify the feeling of touch, and a quality of the object is demon-

strated, called solidity, the various degrees and modifications of which, such as hardness, softness, fluidity, elasticity, etc., are dependent upon the modifications of the force of the muscular contractions, and hence the modifications of the feeling of muscular contraction and the modifications of the feeling of touch caused by the modifications of the force of the muscular contractions and by variations in the object touched. Solidity, then, is not a sensation, nor a mere combination of sensations, but is a demonstrated quality of the object.

Thus far, then, our analysis of external perception yields us two elements of its constitution, namely, a demonstrated object, and demonstrated object properties. But these two elements, either alone or in combination with each other, can never make a perception. We cannot perceive a mere object without properties; we cannot perceive the primary qualities, extension and solidity, without an object; nor can we perceive an object which has the qualities extension and solidity. In this respect they resemble all other demonstrated truths. All demonstrated truths are non-perceivable, and, because non-perceivable, inconceivable, using the term conceivable in its sharply defined and restricted acceptation.

Thus, I have before me a right-angled triangle with a square erected upon each of its three sides. I look at it for a long time, but in vain do I try to perceive or conceive the relative size of the big square as compared with the two small ones. But, now, I have discovered a process by which I demonstrate to myself that the big one is exactly equal to the sum of the two little ones, and it makes me just as certain of that fact as I am that either square is before me. With this positive knowledge of the true relation between those squares, I again try to perceive or conceive that the big one is equal to the sum of the two little ones, but I fail as completely as I did on the first trial, that is, I fail to perceive or conceive that the big one, *because it is a square upon the hypothenuse of a right-angled triangle, is equal to the sum of the squares upon the other two sides*—for all this must be embraced in the perception or the conception. All my efforts to perceive or conceive that equality hopelessly end in one of two things: I either give up the effort as futile, and rest convinced that they are equal because I have just demonstrated them to be so, or else

I abridge the demonstration as much as possible, so that I take in the main steps of the operation, almost at a single grasp of my vision or of my imagination, in my efforts to perceive it or conceive it. But still it remains a demonstration, however abridged; and, hence, what I really perceive or conceive are the successive intuitions which enable me to know with an absolute certainty that the square of the hypothenuse is equal to the sum of the squares of the other two sides.

The existence of a mere object, aside from its properties, is a demonstrated fact, and, as such, it is non-perceivable, although it is known to exist with as absolute a certainty as that of the existence of the sensations by which it is proved. Furthermore, as its properties, extension and solidity, are also demonstrated facts, they of themselves are as non-perceivable as the object itself. And, finally, an extended, solid object, as is evident, is no more perceivable than the object alone or its properties alone; and yet its existence as an extended solid object—as a demonstration—is absolutely certain. But to exist in a world of such objects would be tantamount to existing in no world at all. Then, in external perception, something else must be added to this non-perceivable world by which it becomes a real perception, and, hence, the real world such as everybody knows it to be.

This brings us to the consideration of our sensations as an element in external perception in a very different way from that by which they demonstrate the existence of the non-perceivable object and its non-perceivable qualities. In other words, having shown that our sensations are the means by which the non-perceivable object, together with its non-perceivable properties, is demonstrated, we have now to show that these same sensations are the means by which the non-perceivable object and properties combined are made perceivable. We will, at the same time, show that, in doing this, our sensations—which as sensations alone are not perceptions, and hence are non-perceivable—do, when conjoined with the object and its qualities, become perceivable with them; so that the non-perceivable object and qualities, conjoined with the non-perceivable sensations, become the object perceived. *Thus, object and sensations—object and subject—determine each other.*

I perceive that red apple. The red, which I know is a sensation

essentially internal, seems to be out there, pertaining to the apple, as objective as the apple itself. We have seen that no mere sensation or combination of mere sensations can give that red such seeming objectivity. We have also seen that the two demonstrated elements of all external perceptions—the non-perceivable object and its non-perceivable qualities—can only be demonstrated to us by the convergence of the sensations of two or more senses upon them; in other words, by the combined relation of object and object properties with two or more sensations. Now, if we analyze this relation a little closer, it will be discovered that, in such a relation, the sensations, the subject qualities, from the very fact that they are thus related, must necessarily partake in appearance of the externality of the object and object qualities to which they are related, and must, therefore, seem to pertain to them. Thus, by supposition, I am again stripped of all my senses except that of sight, and have everything to learn. I see a red color. I experience the sensation for a long while; but it remains true to its real nature—subjective without change or apparent change. Now the sense of feeling and muscular motion are conferred upon me. I raise my hand before my eyes, and I cease to feel the sensation of red; it is obliterated. My conviction that it was an affection of myself is not shaken, however. I now move my hand farther from me, at the same time moving it from side to side, before me, and the red alternately appears and disappears; finally my hand touches something; but, as I continue to move it from side to side in contact with that something, the red appears and disappears as before. By this process both the object and its properties are demonstrated, as already explained, so that I know that, out there, is a solid, extended object. Now, by the same process, and at the same time that it gives me the demonstrations, I have traced the red to its source—the object; and by a delusion, which I have no means *at the time* of correcting, the red seems to be just under my hand, upon the surface of the object which is its source; and hence it seems to pertain to the object, not to the subject. I say, we have no means, *at the time*, of correcting the delusion; for our only means, at the time, are the related elements —the sensations, the object and the object qualities—and it is they, as related, that cause the delusion. Thus, the red, the sensation, defines and determines both the demonstrated object and

its properties, and is itself defined and determined by them; and now I have an external perception of a red object.

In the same way the feeling of touch becomes located seemingly upon the object, and associated with those modifications of solidity known as hardness, softness, elasticity, smoothness, etc. Thus, our object is perceived as a something which is shining, smooth, red, extended, hard, standing separate and apart from ourselves.

In the foregoing illustration, and in other similar ones made use of in this article, I have condensed into a few lines of description, and into a few moments of duration, vast processes of animal and human evolution, individual development and personal experiences, which might perhaps require volumes for their full description, and certainly have occupied ages in their full accomplishment. The reader will, of course, bear in mind that my brief illustrations, consisting of imaginary *personal* experiences, are to be taken simply as illustrations of vast processes of animal and human experiences with the accompanying organization of such experiences, the former varying so slowly and imperceptibly, and the latter creeping together so sluggishly and solidifying so silently, that no change seems startling or abrupt, and nothing is left (not even upon consciousness, animal or human) but results, induced and organized by methods and processes which can only be known subsequently through the investigations and analyses of science.

In conclusion, we have shown that an *unperceived* object is an extended, solid something which is separate and apart from our sensations.

We have also shown that we are as absolutely certain of the existence of that extended, solid something as we are of the existence of our sensations.

We have also shown that a *perceived* object is a union of—

1. A demonstrated object.
2. Demonstrated object properties.
3. Sensations, or subject properties.

Therefore, in external perception, there is a union of object and subject; and it turns out that this union is a more definite reality than we have, perhaps, hitherto been led to suppose.

IS PANTHEISM THE LEGITIMATE OUTCOME OF MODERN SCIENCE?

BY W. T. HARRIS.[1]

I. *Three Theologic Views of the World.*

In all theological and philosophical discussions it is necessary to go at once behind words to their meaning. In mathematics, natural science, and ethical science, it is of course equally necessary to define terms and use them consistently; but, inasmuch as natural and ethical sciences relate to facts and phenomena of observation and consist in large part of an inventory of such phenomena, it follows that there is much that remains of value after deducting careless and inaccurate reasoning, and making allowance for confusion in the use of terms. In philosophy and theology we do not find a store of immediate facts that retain their value even when misused by reflection. These sciences deal with reflection and results of reflection.

"Pantheism" is a term now very often used to name that view of the universe which, while it rejects the doctrine of a Personal First Cause of the world, on the other hand insists upon the dependence of nature and man upon a substantial principle or an impersonal Power from which everything emanates and into which it all returns. This use of the word "Pantheism" is comparatively a recent one. It was used by Toland early in the last century to denote a polytheistic worship of all the gods.

Our present inquiry in regard to the outcome of modern science doubtless requires us to employ the word in the meaning first defined. The question is, whether modern science leads toward a belief in a personal God or toward a belief in a blind unconscious power, or, finally, whether science finds only things and forces in the universe without unity in a first principle. For there are three hypotheses instead of two—atheism, pantheism, and theism. To him who finds no necessity for an ultimate unity of all things, there is only atheism. To him who sees the necessity of unity, but finds it a mere essence or substance from which

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things in their multiplicity arise, and into which they return, there is pantheism. Finally, the theist sees the necessity of unity, but, more than this, sees too the necessity of the form of personality as the form of any ultimate unity or totality.

Before discussing the tenability of either of these views let us consider for a moment the practical interest involved in them. In the idea of God, man defines for himself his theory of the origin and destiny of the world. The whence and the whither of nature and of man are involved in this idea, and through it, therefore, are determined his theoretical views and his practical activities. If he believes that this supreme principle is blind fate, unconscious force, or something devoid of intelligence and will, this belief will constantly modify all his thoughts and deeds, and ultimately shape them into harmony with his faith. If, on the other hand, he regards this supreme principle as a conscious personality, as absolute intelligence and will, this view will likewise shape his thoughts and deeds, but with a radically different result. The former theory is unfriendly to the persistence and triumph of human beings, or of any rational beings whatever. It will not account for the origin of conscious beings, showing how conscious reason is involved as a presupposition of unconscious being, or how the unconscious must necessarily develop into consciousness as one among its potentialities; still less can that theory permit the persistence of conscious individualities, for that would admit consciousness to be the highest principle, and not a mere phase or potentiality of unconscious being. Even if conscious individuals could emanate from an unconscious first principle, they would be finite and transitory phases, mere bubbles rising to the surface and breaking into nothing. The activity of the First Principle—and all conceptions of the First Principle must regard it as active—must be in accordance with its own nature, must tend to shape all things so as to correspond to that nature. For activity is expression; that which acts utters itself on that upon which it acts. It gives rise to modifications in an object by acting upon it, and these are its own expression; it again modifies, through its continued action upon the object, the modification which it had previously caused, and in all this continued action only secures a more perfect expression of itself.

An unconscious Absolute would in the first place express itself

in unconscious individualities. If we suppose that there were conscious individualities already existing upon which it could act, such an Absolute would produce modifications in them that would tend in the direction of an obliteration of the element of consciousness. On the other hand, the activity of a conscious Absolute would tend continually to the elevation of all unconscious beings, if there were any, toward consciousness. For its activity would tend to establish an expression of itself—the counterpart of its own being—in the object. If its created objects developed into consciousness, they would be sustained on that plane by the influence of the Absolute, and not allowed to lapse.

To unconscious beings it is all the same whether the Absolute is conscious or unconscious. It may create them and destroy them without cessation—what is that to them? But to human beings, or to any other rational beings, such a blind fate as an unconscious Absolute is utterly hostile and repugnant in every aspect. Their struggle for existence is a conscious one, and they strive ever toward a more complete consciousness and a larger sphere of directive will-power over the world in the interest of conscious, rational purposes. But an unconscious First Principle would be an absolute bar to the triumph of any such struggle. The greater the success of man's struggle for self-consciousness and freedom, the more unstable would become his existence. It would result in his being further removed from harmony with the activity of the unconscious absolute substance, and that activity would be more directly hostile and subversive of man's activity the more he had developed by rational culture. Hence, with a belief in an unconscious Absolute, rational beings find themselves in the worst possible situation in this world. Pessimism is their only true creed. Any sort of culture, development, or education for the so-called "faculties of the mind," all deeds having for their object the elevation of the race into knowledge and goodness—whatever, in short, is calculated to produce and foster human individuality—must have only one net result—the increase of pain. For the destruction of conscious individuality is attended with pain; and, the more developed and highly organized the individuality, the greater the pain attending upon its dissolution. Nor is the pain balanced by the pleasure of the exercise of human activity in its transient existence, for the negation and consequent pain is twofold—the

pain of birth and growth from a lower to a higher order of existence, and the pain of decay and death. The conscious struggle, being in direct opposition to the activity of forces of the Absolute involved in the creation of the personal beings, is a struggle full of pain; finally, the beings vanish through the agency of the destructive forces of the Absolute, a second pain, still more terrible.

On the basis of atheism there is utter indifference with regard to the ultimate origin and destiny of individual things. Inasmuch as immediate and independent existence is assumed for each and every thing, there is no origination, properly so called, nor any destiny. Everything is as it is, and absolutely so, on the strict atheistical basis. Each thing has always been and always will be: strict atheism is atomism. It is not atheism to hold that things and events are mere phenomena or appearances, and that behind them there are noumena or substantial beings or powers and forces. For such a theory implies a conviction that multiplicity demands unity, and this theory carried out results in the all-absorbing unity of pantheism. To remain on the standpoint of atheism it is requisite to deny relativity. According to atheism, there can be no essential dependence. All relations are accidental and each thing is sufficient for itself.

Once admitting the principle of relativity, atheism is no longer logically tenable. Mutual dependence among things reduces them to unity. This unity may be conceived as personal or as impersonal—and the result is theism or pantheism. According to pantheism, each and every immediate being is phenomenal. It is apparent and not real. It is a "manifestation of a hidden and inscrutable essence," as Herbert Spencer asserts. Why "inscrutable" if it "manifests" itself, we ask? Because the essence in itself is devoid of all form and individuality. Individual things we can see and examine, but the essence which abides when all these things are destroyed, that we cannot perceive by any one of our five senses. The essence is abstract. It originates particular things, and it swallows them up again. They are not complete enough to reveal the essence. If one comes to the conception of essence by discovering necessary dependence on the part of things as exhibited in the process of change (origination and decay), he conceives it as negative unity—in other words, as a unity existing on a higher plane than the things and existing after

their destruction. Any force in its process of manifestation creates a series of states or conditions in matter each of which may be called a "thing." In the series the force abides and completes its manifestation through the creation and destruction of the states called "things," for force is a unity on a higher plane than that of the "things." Now, these forces themselves are not to be regarded as independent or as totalities, but as mutually dependent and relative. Hence they reduce again to a still higher unity, the so-called "persistence of force." The particular forces are abstract as compared with the things which they make; the ultimate force is an ultimate abstraction inasmuch as it retains neither the forms of things nor the forms of the special forces. Heat, light, electricity, gravitation, magnetism—all lose their characteristics in the ultimate force. In view of this conception, there is no immediate being that can survive throughout the entire process of the world. All must perish. Everything that has form and character must pass away. Things organic and inorganic, human beings and institutions, none are persistent. This is Pantheism.

But if the standpoint of reflection upon the facts and processes of the world is that of theism, the outlook is entirely different. Instead of a formless highest principle which is hostile to the permanence of all particular individuals, a highest principle is set up whose nature is perfect form. Perfect form contains not only the forming principle, but also the formed; it is self-determined and self-active, and hence subject and object. For theism finds the ultimate and absolute to be personality or perfect form instead of the negation of all form. Hence the world-process is to be interpreted rather as the evolution of this perfect form or conscious being rather than as a process of producing individualities with no purpose except to annul them. There is an ideal at the summit of the universe, perfect personality, the goal toward which creation moves. Hence with theism there is immortality for man and infinite progress possible. The divine Being is perfect form, and its influence gives a tendency in the universe toward the survival of whatever reaches conscious personality. It is understood here that personality implies consciousness and free will. Personality, according to theism, is not *per se* finite and limited, but is the true form of infinitude because it is self-determination, self-activity,

and not something which is originated and sustained by something else. Imperfect creatures, like men, participate in this self-activity, and have the possibility of infinitely growing into it by their own free activity.

In stating the practical interest involved in the three views of the world, we encounter here the chief objection which is made to theism. It is held that personality cannot be the form of the absolute or infinite, because limits and determinations are necessarily implied in the conception of personality; theism is therefore regarded as anthropomorphism. Theism departs from pantheism just at this point. The absolute is conceived as negative by pantheism. It is devoid of all attributes and properties—empty of all determinations. But theism conceives the absolute as self-determination or self-activity. Pantheism arrives at the void; theism arrives at the fullness of being.

The substantial thought of theism—its road to the idea of personality—is this: Every being must be either independent or dependent; if dependent, it belongs to some other being upon which it depends. The independent being is a whole or total. The independent being is likewise determinate, possessing attributes and properties. That which possesses no properties or attributes neither exists for itself nor for anything else—it is a pure nothing. Hence such an absolute as pantheism conceives is a pure nothing, and no real absolute. On the other hand, there are two kinds of determinate beings—those that are determined through others, and those that are determined by their own activity.

Finite beings are, as Spinoza said, those that are determined through others—depending on others and, therefore, belonging to other beings. Infinite beings are those which are their own others—depend on their own activity for their qualities and attributes. But the agnostic says: "I can form no idea whatever of a self-activity; it is only a word and means no more than 'round square' or 'white black.'" This convenient method of disposing of an idea by pronouncing it unthinkable is, however, not available. It proves altogether too much. Herbert Spencer uses it to disprove the fundamental notions that form the basis of Theology, Self-existence, and Creation. They are unthinkable. But he forgets his test of truth when he comes to the second part of his book and proves the persistence of force and matter. He admits that per-

sistent force is inconceivable, although he claims to be more certain of its existence that he is of any object of experience. Inconceivability, in fact, is no hindrance to cognition at all for any agnostic, because the term means nothing but unpicturability. Not only is self-activity unpicturable, but any motion or activity whatever is unpicturable, either in the imagination or on canvas. "A thing cannot move where it is, and, of course it cannot move where it is not," said Zeno. All categories involving activity are equally inconceivable — such, for example, as force, becoming, change, process, birth, and decay. So also are all categories of relation and dependence. But it may be said truly that all these ideas are conceivable if one adopts an adequate definition of "conceivable" and does not confound it with "picturable." A concept is not properly a picture at all, but rather a rule or schema for the formation of pictures. Under the concept horse we picture to ourselves a particular horse, but we at once recognize the difference between our picture and the general schema which we think in our concept.

The important element in a concept is the definition. Just as the unpicturable notion of "persistent force" is an ultimate truth according to Mr. Herbert Spencer, so, if rightly considered, self-activity or self-determination is presupposed by persistent force, and persistent force is unthinkable except in the form of self-activity.

According to the idea of correlation of forces, one force in acting passes over into another. Thus heat, light, electricity, and other forces vanish the one into the other. Thus forces, thought as a complete series, make up a circle of activity, the last of the series becoming the first. The persistent force is the energy common to all and underlying all. Each particular force is aroused to activity by the action of another, but the persistent force is not a particular force over against another, but the totality of energy as a unity. The persistent force is, of course, an energy, an activity, that is not derived from another. It is therefore self-active. It is clear, therefore, that persistent force is not happily named "force." A force is usually thought as existing in a state of tension with other forces; it is conditioned by them, and essentially a finite being. But the all-inclusive energy of the entire system of forces is a self-related energy, and hence a self-activity.

We now can see the futility of the argument against theism that it involves anthropomorphism. Self-activity is not finite limitation, but mastery over limitation. Self-activity, which belongs to the very definition of mind, is the essence of freedom and power to transcend limits. But it is surprising that while repudiating self-consciousness and will, the two forms of self-activity, pantheism is ready to admit force or power as an attribute of the absolute. Force or power, implying a tension of opposites, is an idea actually below the anthropomorphic idea, because it directly involves finitude.

Perfect form or self-existent being must necessarily be self-determined being, and, therefore, have the form of mind or self-consciousness, and, inasmuch as man has this form, it may be called anthropomorphic. All totalities, all independent beings, have the form of self-determination, and are subject and object of themselves, and in this sense anthropomorphic. To speak of anthropomorphism in this sense as limitation is like saying that the form of infinitude is a limitation. Persistent force, regarded as the totality of the complex of finite particular forces (or as an "ultimate scientific idea"), is of necessity self-determined, and hence it, too, is anthropomorphic.

II. *The Method of Modern Science.*

Having thus considered the definitions of pantheism and the outcome of the generalizations made by the scientific mind in our time looking toward the ultimate nature of the principle underlying the world of objectivity, let us turn our attention to the aspect of modern science that is least identified with philosophical thinking—namely, its empirical method. If we can learn by our investigation what it presupposes, we shall find ourselves in a position to determine the answer to the objection made to all philosophical and theological conclusions whatever—the objection, namely, from the standpoint of "positive" or empirical science to the effect that we cannot transcend experience, and that experience is only possible in regard to finite and relative objects, and in no wise possible in regard to an ultimate principle. On this ground it utterly repudiates what it calls "introspection" and the "method of introspection." Moreover, it declares against all generalizations not based on and derived from external experiment, claiming

that all scientific knowledge is knowledge obtained through specialization and actual inventory of details. It thus rejects all inferences of a theological character and holds them to be unwarranted by science.

It is not the necessity of specialization for purposes of making an inventory of nature that militates against philosophy or theology, for why should not both these exist as well as specialized inventorying? It is the attitude of the scientists against all general surveys. They assume that these general surveys are not only unnecessary, but vicious in all science; hence they deny the existence of a scientific philosophy or theology.

But this assumption of scientists can be shown to be wholly grounded on a misapprehension of their own procedure in scientific knowing. It is due, in other words, to an incorrect account of the processes involved in the scientific method itself. It is a simple matter to initiate and carry on some one of the scientific processes by which discoveries are made, but the system of science as a whole is presupposed as a sort of invisible guide or norm that makes possible the act of specialization. We have division of labor and the specialization of the work of the individual because of the system of collection and distribution which commerce carries on, and by which it supplies each with the needed food, clothing, and shelter that he does not produce, for the reason that he is engaged in his special vocation that furnishes only one of the many required necessities.

The special scientist cannot confine his attention to one subject without definition and limitation effected by the collective labors of his fellows, not only in their special departments lying contiguous to his own, but as well by their labors to state the relations of the special results to each other.

In order, therefore, to discuss with profit this question of Pantheism as the outcome of modern natural science, we must first investigate the relation of specialized inquiry to its organization into a system, or, in other words, to a general survey of the whole scientific field.

The specialist sometimes supposes that his industry is all that is required for the creation of science in its completeness. He condemns what is called the philosophy of his subject as though it were premature generalization and unwarranted systematizing.

On the other hand, it must be confessed that the philosopher is apt to be impatient at the plodding toil and narrow gains of the specialist. But the fact that it needs both species of investigation becomes evident when we look to the practical field of human activity. Man must act as well as think.

The will executes while the intellect surveys or analyzes. In the performance of a deed the will should act in view of all the circumstances, but this view of all the circumstances is an intellectual survey. Hence human action demands a general survey of the circumstances before it in order to act rationally. Suppose we omit the philosophical activity of the intellect—leave out the generalization consequent on a survey of the whole—and try to act with the aid of the specializing intellect alone? Then the will resolves and executes in view of a fragmentary circumstance, and does not weigh one particular motive with another. The result will be lame and impotent, because it lacks considerateness and looks neither before nor after, but acts from one motive, and a trivial one, because it is an intentionally special view and not a general survey.

The necessity of practical activity in any province, therefore, demands the intellectual activity of forming a general survey, as well as the intellectual activity of analyzing and specializing. It is important to see how these co-ordinate.

Rational will-power is the will under the guidance of directive intelligence. This intelligence surveys various objects of action and selects one of them as desirable; it surveys likewise various modes of action and adopts what seems to be the best. Now, it is clear enough that analytical investigation may divide and subdivide objects and means forever; if the will waits for the completion of analytical investigation, it waits forever. The analytical intelligence can never arrive at a conclusion. Its analysis only serves to open up new vistas of further investigation. But at any point of its procedure it is possible for the intellect to stop its analytical investigation and unify its results by comparison, sum all up in a general conclusion, saying, "In view of all that is thus far discovered, this conclusion will follow." The trend is discoverable when only two facts are ascertained; a third fact may reveal a modification of the previously discovered trend, or perhaps only confirm it. The practical activity, whenever called upon

to perform a deed demands a cessation of analytical investigation and the interposition of a general survey, in order to discover the trend that is revealed by the facts discovered; with this provisional view of the whole, it acts as rationally as is possible with its imperfect intelligence.

Admitting that the increase of light by the further discovery of new facts by the aid of the analytical intellect is a never-ending process, we shall admit also that the will may act more and more rationally according to the quantity of analytical, specializing work of the intellect that has been performed. But there can be no direct step from the specializing activity to the will-activity of man. There must always supervene a summing up of those special results in a general survey before they become of any practical use. The jury must not permit themselves to decide until the case is closed. The case must be closed when only a part of the facts are in, because only a part of the facts can be ascertained. In any science the facts can never be all ascertained, because each fact is divisible by analysis into constituent facts, each process into constituent processes forever. This is evident from the infinite divisibility of time and space. Therefore we may affirm without contradiction that specializing science must admit the necessary intervention of the philosophic activity which takes general views or surveys before its results can become useful in human activity.

But this is not all: if we examine what constitutes a science we shall be compelled to acknowledge that mere specializing analytical industry can never produce a science. Science is systematic knowledge. Facts are so united to other facts within a science that each fact sheds light upon all facts; and every fact upon each fact. From the special facts discovered by the analytical activity of the intellect, not only no practical use would ensue, but no theoretic use except through their synthesis by general surveys. A science results only after the particular facts obtained by analytic specialization are summed up. The case must be closed, and for the moment the assumption made that all the facts are in, if we are to discover the connecting link which binds the facts into a system. Without system no mutual illumination occurs among the facts; each is opaque and dark. So long as a fact in a science does not yet help explain other facts, and receive

explanation from them, it is as yet no organic part of the science. It is itself an evidence of the imperfection of the science. The science appears only when the general survey has become possible. Facts are united into a system by principles—energies that include forces and laws.

Studying more carefully the function of the synthetic activity of the mind as seen in the general survey, its difference from the analytic activity becomes clear. The analytic specializing divides and subdivides the fact or process before it, and goes from wholes to parts. The synthetic discovers unities of facts by means of relations of dependence. This phase or fact and that phase or fact are parts or results of one process, and so it concludes that they may be comprehended in one. Then, again, it steps back from the discovered unity and looks for relation to other unities and its dependence on a higher process, which unites it with co-ordinate processes. Each new generalization is only an element of a higher generalization.

Science demands inventory, general survey, and experiment. Even in the matter of making an inventory, science avails itself of general survey under the form of definition. No definition can be made without such a survey, for it involves an attempt to grasp together a whole class under some common characteristic. Without the definition hovering in the mind, how shall one know which facts to include in its inventory and which to exclude? To take any and all facts without limiting the selection within a category would be the purest futility. Inventory proceeds, therefore, by recognizing new individuals as belonging to a previously described class. Within this class new characteristics are to be recognized and new sub-classifications made. Experiment, too, starts from a principle already generalized or assumed as an hypothesis—thus grounded in a general survey, like the inventory-process, only far more explicit. A fact is to be found and identified by the inventory; but by the experiment it is to be constructed. The theory or hypothesis is derived from general survey, and it furnishes the rule for the construction of the fact. If it finds the reality accord with it, there is verification of the theory or hypothesis—the principle is confirmed. If the reality does not result according to the theory, there is a refutation of it. The theory was simply an extension of the

conclusion drawn from the general survey from what was before known.

Analytical specialization is most successful in the form of experiment, and is guided by hypotheses. Witness the immense fertility of biological research in recent science when its industry is guided by the Darwinian hypothesis. That hypothesis is, of course, like all theories, the result of a general survey, the synthetical activity of the mind. This is what may be called the philosophical activity of the mind. It closes the case, stops the process of analysis and inventory of new facts, assumes that all facts are in, and asks in view of them: "What unity, what principle is presupposed?" The answer to this question unites into a system what is known, and furnishes an hypothesis or provisional theory for further analysis and inventory of special facts. Thus the philosophical activity enters science as an indispensable factor, and alternates with the analytical activity that discovers new facts.

But there is another phase of the synthetic activity of mind which transcends this hypothetic synthesis, this making of provisional theories. It is the *a priori* synthesis that underlies all mental activity. Intellect recognizes by an *a priori* act time and space as the logical condition of the existence of all nature—the entire totality of facts and events. What it knows of Time and Space is formulated in the science of mathematics as so much theory of nature that is known *a priori*. So much is not in need of experimental verification, because it is certain at the very outset that nothing can exist in the world unless it conforms to the mathematical laws of time and space. Besides the mathematical elements of theory there are other *a priori* elements equally sovereign in their sway over experience; such are the law of causality, the principles of excluded middle and contradiction, the ideas of quality and quantity, the idea of the conservation of energy. The mariner ploughs the sea, looking from wave to wave, passing from horizon to horizon, but he holds on his course only by the observations which he makes ever and anon of the eternal stars. So the specialist lifts his eyes from the multitudinous seas of facts through which he moves to the fixed lights of mathematical truth or to the planets of provisional theory, and is able to go forward to a desired haven.

III. *Scientific Method presupposes Living Energy as First Principle.*

The synthetic activity of the intellect looks at the history of its object. It expects to find in the history of its growth and development a complete revelation of the nature of its object. That which offers itself to the senses as the object perceived is not the whole of the phenomenon, but only one of its manifestations. We may call the phenomenon the entire process of manifestation, including all the phases. In one moment some one phase is exhibited, in another moment some other phase.

The acorn which we see lying on the ground is not the whole process of its manifestation—not the whole phenomenon. It is only a temporary phase in the growth of an oak. In the course of time this acorn would sprout from the soil and become, first a sapling, then a great tree, bearing acorns again. The acorn itself depends upon the whole process which forms the life of the oak, and is to be explained only by that process. So likewise any other phase or immediate manifestation in the life of the oak—its existence as a young sapling, or as a great tree, or as a crop of leaves, blossoms, or, indeed, a single leaf, or blossom, or bud.

Science sees the acorn in the entire history of the life of the oak. It sees the oak in the entire history of all its species, in whatever climes they grow. It sees the history of the oak in the broader and more general history of the life of all trees, of all plants; and, finally, it considers plant life in its relations to the mineral below it and to the animal above it.

To see an object in its necessary relations to the rest of the world in time and space is to comprehend it scientifically.

The object just before our senses now is only a partial revelation of some being that has a process or history, and we must investigate its history to gain a scientific knowledge of it. Its history will reveal what there is in it. No object is a complete revelation of itself at one and the same moment. The water which we lift to our lips to drink has two other forms; it may be solid, as ice, or an elastic fluid, as steam. It can be only one of these at a time. Science learns to know what water is by collecting all its phases—solid, liquid, and gaseous—and its properties as revealed in the history of its relations to all other objects in the

world. So, likewise, the pebble which we pick up on the street is to be comprehended through its geological history—its upheaval as primitive granite, its crushing by the glaciers of the Drift Period, and its grinding and polishing under icebergs.

We must trace whatever we see through its antecedent forms, and learn its cycle of birth, growth, and decay. This is the advice of modern science. We must learn to see each individual thing in the perspective of its history. All aspects of nature have been, or will be, brought under this method of treatment. Even the weather of to-day is found to be conditioned by antecedent weather, and the Signal Bureau now writes the history of each change in the weather here as a progress of an atmospheric wave from west to east. The realm which was thought a few years since to be hopelessly under the dominion of chance, or subject to incalculably various conditions and causes, is found to be capable of quite exact investigation. This is all due to the method of studying each particular thing as a part of a process. When the storm-signal stations extend all over the world, we shall learn to trace the history of atmospheric waves and vortices back to the more general movements of the planet, diurnal and annual, and we shall find the connecting links which make a continuous history for the weather of to-day with the eternal process of exchange going on between the frigid and torrid air-zones, and trace the relation of this to the telluric process of earthquakes and the periodic variation of sun-spots and their dependence upon the orbital revolution of Jupiter and other planets. Doubtless we shall not see a science of astrology, predicting the fortune of the individual man by the foreordained aspects of the planets under which he was born; but it is quite probable that, when the history of the meteorological process becomes better known, we shall be able to cast the horoscope of the weather for an entire season.

This method of science, now consciously followed by our foremost men of science, is not an accidental discovery, but one which necessarily flows out of the course of human experience. For what is experience but the process of collecting the individual perceptions of the moment into one consistent whole? Does not experience correct the imperfection of first views and partial insights by subsequent and repeated observations? The present has to be adjusted to the past and to the future. Man cannot choose—he

must learn in the school of experience; and the process of experience, blindly followed upon compulsion, when chosen by conscious insight as its method, becomes science.

The difference, therefore, between the scientific activity of the mind and the ordinary common-sense activity lies in this difference of method and point of view. The ordinary habit of mind occupies itself with the objects of the senses as they are forced upon its attention by surrounding circumstances, and it does not seek and find their unity. The scientific habit of mind chooses its object, and persistently follows its thread of existence through all its changes and relations.

Science has not been conscious of its method to such a degree that it could follow it without deviation until quite recent times. We might say that Darwin, of our own generation, is the first to bring about the use of the historical method as a conscious guide to investigation. And, indeed, although science has found the true method, it has not seen the ground of the method—its ultimate presupposition. It has much to say of evolution, and justifies its method by the doctrine of development of all that is from antecedent conditions. Homogeneity and simplicity characterize the first stages; complexity and difference of quality and function characterize the later stages. There is growth in a special direction. By survival we learn to know what is most in accord with the final purpose of nature. But we cannot see this teleology or final purpose except by taking very large arcs of the total circle of development.

The reason for this historical method, however, is to be found in the necessity already shown, to wit: All total or whole beings—that is to say, independent beings—are self-determined beings. Self-activity is the basis of all causal action, all dependence, all transference of influence. Hence it follows that when we behold a manifestation, phase, or incomplete exhibition of something, we look farther to see the whole of which it is a part. We look back to its antecedents, and forward to its consequents, and by these construct its history. We have not found it as a whole until we have found it as energy that initiates its own series of changes and guides them to a well-defined goal. The oak as a living organism thus initiates its series of reactions against its environment of earth and air, and converts the elements which it takes up

from without into vegetable cells, and with these builds its organs and carries itself forward in a well-defined method of growth from acorn through sapling, tree, blossom, fruitage, to acorn again as the result. All inorganic processes likewise, when traced into their history, exhibit the form of cycles, or revolutions, that return into the same form that they began with, thus repeating their beginning, or rather making a sort of spiral advance upon it. The energy that repeats again and again its cycle of activity is either life itself or an image or *simulacrum* of life. The annual round of the seasons, the daily succession of day and night, the cycle of growth of the planets themselves, or even of the solar systems—each of these is an image of life, as Plato long ago pointed out. All points back to an efficient energy somewhere that is its own cause in the sense that it originates its movements and changes and causes its own realization.

IV. *Three Stages of Scientific Consciousness.*

The reason why this presupposition of a First Principle in the form of a living energy is not seen clearly by all students of natural science is to be found in the repudiation of introspection—which we have discussed above as the boasted advantage claimed by the specializing analytical activity of science. In thinking there are three stages of culture or development, well marked, since the time of Plato. These three grades of culture in thought stand for three degrees of capacity to think the First Principle of the world. Or rather each of these grades has its View of the World peculiar to itself. The difference between the several stages of thought depends upon the capacity to see an object in its entirety.

a. The lowest stage of thinking considers its objects as isolated and independent things, and ignores the importance of relations. As it isolates its objects and holds them apart or abstracts them from all relations, I call it "abstract" thinking. As it supposes that all relations are non-essential and due to merely external combining of objects, it insists on thinking atoms as the ultimate elements of existence. It is the atom-stage of thought. As it knows by experience that bodies are composite, its theory sustains itself by holding that large bodies are made of small bodies.

b. But a higher stage of thinking supervenes when the mind begins to become conscious of essential relations; when it discovers

that one object depends upon another in such a manner that a change in the one modifies the other, it comes to see that objects are not independent existences, but that they are terms of ratios. Change one term of a ratio, or fraction, and you must change the other, or else the value of the ratio or fraction will suffer change. To find that an object is a term of a ratio is to find that it is not a whole complete existence in itself, but that it is a portion of an including whole, and is what it is only through the activity of a process. At this stage of thinking it discovers that objects are phenomena and not essential beings. Take this stone under my feet. It seems to me at first to be something complete in itself, but observation and reflection convince me that it is heavy and attracted to the centre of the earth and to the sun and to all the stars, however distant. Change the weight of the earth and you change the weight of this stone, and the relation of its gravity to its cohesion changes, and who knows whether a single quality of it would remain as it is? Everything is phenomenal, a manifestation of a sort of ratio of forces hidden behind the visible objects, and these visible objects reveal those forces in their properties and changes. Since the discovery of the law of gravity by Newton our studies of the world have been coming gradually to this stage. I call it the "concrete" stage of thought, because it thinks things in their concrete relations.

c. But this is not the highest stage of thought. Even natural science has achieved a higher thought than this in its best minds. Plato long ago discriminated four stages of thought, and called the highest stage the one that thought things as a totality or as a whole, whose principle he called "self-movement." Looking not at any result in particular, but at the spirit of the scientific inquiry, or at the method it uses, we have found that its purpose is to study an object as a part of a process having a history. We have seen how it traces out the several stages of the process and finds the antecedent steps through which the object came to be as it is, and infers the steps that it will next develop. Any process is complete when its end produces its beginning again. Then each fact is explained by all others, and contributes in turn to their explanation.

The First Principle, as seen by the most elementary stage of thought, is an atom, or rather a universe of atoms. For it looks upon everything as perfectly real, perfectly independent. If it

thinks of the action of one thing upon another, it is in the habit of personifying things after the manner of Feticism. There is not One Supreme Person, but many co-ordinate personalities exist for it in accidental relation to each other. Each is an atom at rest, or a personal atom when in motion.

The second stage of thought has begun to reflect profoundly. It has seen essential relation, or dependence. Since the discovery of dependence resolves what had seemed separate and plural into unity—for a dependent being is only a part of some whole that is independent—it follows that this second stage arrives at an all-absorbing unity as the First Principle of the universe. It reaches a pantheistic view of the world. This is the prevailing stage of culture of those who are interested in natural science on account of its general surveys of the universe, just as feticism is the natural point of view of those who are interested in the mere inventory of the things of the world, the first stage of science and the first stage of thought. It may be well to remark here that even the highest religion, when seized by a mind incapable of any other than the atom-stage of thinking, will be lowered into some form of feticism.

The third stage of thought arises in natural course by the growth of reflection up to the point where it sees the totality of relation. Relation traced out must return to the being from whence it started. This is to be clearly conceived only as self-activity. Even the doctrine of Persistent Force, upon which Mr. Spencer lays so much stress as the ultimate idea of science, involves this notion of self-activity, as we have already shown. For this persistent force, which is neither heat, light, electricity, nor magnetism, but is the underlying force, is certainly not correlated with any of the particular forces, but is a totality by itself. Hence it is not incited to activity by another force, but must be self-incited. It incites all the special forces to activity while itself is self-determined.

V. *Theism the True Outcome of Science.*

To the question whether modern natural science is pantheistic, therefore, we are constrained to answer, Yes, in its middle stages of thought, because the second stage of thinking is in its very nature pantheistic. But modern natural science is likewise atheistic

when we view it as reflected in minds that have not got beyond the first stage of thought. They do not reach a thought of a unity transcending all finite individuals, but rest in the idea of an indefinite multiplicity of atomic individuals. But science is theistic in all minds that see the trend of its method. The study of all things in the light of the history of their evolution discovers a progress toward "perfect form" or conscious being. Stated in the law of survival of the fittest, the universe is so constituted as to place a premium on the development of intellect and will-power. This would be impossible on the basis of pantheism.

In proportion to the degree of self-activity reached by any individual, it achieves control over nature and possesses ability to make social combinations with its fellows. By this capacity for social combination, man of all animals is able to move against nature in an aggregate as a race, and infinitely surpass his efforts as an individual or as a multitude of individuals detached from organization into a social whole. It follows that in proportion as science directs itself to the study of human institutions it becomes impressed with the superiority of spiritual laws over the laws governing organic and inorganic bodies. By intelligence and will man can form institutions and make possible the division of labor and the collection and distribution of the aggregate productions of the entire race. Each individual is enabled by this to contribute to the good of the whole, and likewise to share in the aggregate of all the fruits of industry.

While material bodies exclude each other and do not participate, spirits, endowed with intelligence and will, participate and share in such a manner as to raise the individual to the potency of the race. This amounts to making the individual a universal. When each receives the fruits of the physical labor of all, each fares as well as if he were sole master and all mankind were his slaves; but as master he would be charged with the supervision and direction of all—an infinite burden; this burden he avoids in free social combination, wherein each for his own interest works at his best for the sake of the market of the world, and thus benefits all, though incited by his selfish desire for gain. The material productions of the race are, however, of small moment compared with the fund of human experience, which is first lived and then collected and distributed to each man, so that each lives the

life of all and profits by the experience of all. The scientific man inventories nature through the sense-perceptions of all his fellow-men, and assists his reflections by the aid of their ideas. The life of the whole is vicarious; the individual gets its results without having to render for them the equivalent of pain and labor incident to the original experience.

Participation is the supreme principle of the life of spirit—of intelligent and volitional being. Experience has discovered, by the mistakes of myriads of lives, what human deeds are conducive to the life of participation which endows the individual with the fruits of the labor and the wisdom of this experience of the race. Hence the will acts in the channels marked out as co-operative with the whole. This is moral action.

As science widens its domain and correlates one province with another, it comes to realize in consciousness the spiritual principle of participation which makes science itself possible as the accredited knowledge attained by the joint labors of the race. It comes to realize, moreover, that its method implies in another shape the same principle, because it makes each fact throw light on every other while it explains each in the accumulated light of all the rest. Using the symbol of society, and its principle of participation which is the essence of spiritual life, we may say that science spiritualizes nature by setting each of its individual facts in the light of all facts, and thus making it universal by the addition of the totality of its environment.

Unless the universe were based on a spiritual basis, whence could come the significance of the universal as the illuminating and explaining principle? Just as the principle of the division of labor in the province of productive industry, so, too, the principle of specialization in the prosecution of scientific investigation is rendered possible by the spiritual principle of participation. It presupposes the collection and distribution of the results of all and to all. While material products diminish by distribution, spiritual products, in the shape of moral habits and intellectual insights, increase by being shared. The more a truth is reflected in the minds of others, the better it is defined and understood. The investigator may safely trust himself on his lonely journey into details because he is sure that these details are fragments of the total process and organically related to the whole, so that he is

bound to find the unity again when he has completed the discovery of the history of the fragment before him. The typical man of science, Cuvier, can see the whole animal in one of his bones; Agassiz can see the whole fish in one of his scales; Lyell can see the history of a pebble in its shape and composition; Winckelmann sees the whole statue of a Greek goddess in a fragment of the nose or the angle of the opening eyelids. "All is in all," as Jacotot used to say. But not the fulness of realization of the highest is in the lowest. The lowest presupposes the highest as its Creator, of which it is the manifestation, although not the *adequate revelation.* By so much as material bodies lack of self-activity they lack of revealing the highest principle. According to the principle of Evolution, all things are on the way toward the realization of the perfect form. The perfect form is self-activity, as personal intelligence and will. While in the lower orders of being the individual is farthest off from realizing the entire species within its singularity, yet in the higher orders that possess intelligence and will, this becomes possible, and each may, by continued activity, enter into the heritage of the race in knowledge and ethical wisdom. The perfect form is that complete self-determination which constitutes Absolute Personality. Finite relativity is grounded on the self-relativity of such an Absolute. In the investigation of this field of relativity Science is discovering the presupposition, and in this quest it is therefore on its way toward Theism.

NOTES AND DISCUSSIONS.

A TRIBUTE TO THE HEROES GRANT AND GARFIELD.

BY WILLIAM ELLERY CHANNING.

I.—GARFIELD: THE MARTYRED CHRISTIAN PATRIOT.

"*Crete,*[1] *look! the ships have come.*"

The many fade, the one remains and smiles,
  Life's shadows fly, 'tis heaven that's whispering near,
Beyond the grave, beyond the farthest isles,
  From all the old romantic World,—a tear;—
Like the wild bugle's call that told his flight
Upon the dark, the starless, sorrowing night.

Oh! not the soldier's doom, the bleeding strife,
  Oh! not in falling age with silvery hair;
Borne like the seasons o'er a people's life,
  His sweet endurance warmed the sobbing air.
For such a man to live, for such to die,
It sanctifies, it wafts on high our low humanity.

Dear heart, how calm, how patient was thy thought,
  When the fell anguish slowly mined thy frame!
Dear, generous soul, thy loftier manner brought
  A nation's tear-drops round an honored name.
We weep for thee,—weep that we are not thine,
In all thy true sublimity, one so divine.

'Tis autumn's breath that lifts the moaning sea,
  The vessels float across her surges borne,
And falls around the brave monotony,
  That ceaseless surf-note from old ocean torn;
How cheerful was his thought, "Crete, I am glad;
Look at the ships! they feel for me, be not sad."

A nation weeps! Cold hearts that *must* not feel,
  Come forth and waste their efforts in the stream;
These hours are monuments and stamp their seal
  Upon a people's history. Oh, we deem,
Mother and friend! thy life all sacredly,
Even as he spake, "Be of good cheer," to thee.

[1] [These words were spoken in his last week, and the bugle was heard upon the last night; "Crete," the name he gave his wife.]

There is a death, it consecrates man's lot,—
  He does *not* die, he lives far more than all;
His life is just begun, oh, sorrow not!
  He lifts—himself, he lifts his tear-stained pall.
The people weep; such heavenly virtues claim
A sea of patient tears, they bathe a glorious name.

Yes, glorious! 'tis a hero's loftiest death,
  No anxious dread, no moans, nor weak complaint,—
Nothing save gentlest tenderness, that breath
  With fearful, fatal anguish, palsied, faint;
No sigh, no dull reproach, "I love the sea;"
'Twas all; the sunlit waves, he loved their gentle glee.

He felt them beat along the patient shore,
  Where the wild gull flew baffling on the breeze,
The ever-rolling crash the pebbles bore,
  The dark green gulf-weed tossing off the seas,—
He saw it all: "Crete, see! the ships have come;
They're glad for me," the pageant seemed like home.

He dreamt of his far homestead 'mid the fields,
  He saw the meadows and the sighing woods,
His wounds must pierce, but love that nature yields
  Beat in his noble breast, and her glad moods,
Like the strong currents of the autumnal wind,
Poured thro' his generous thought, his healthful mind.

"And is this all,—came there no hope for me,—
  This sorrow, and the wail of nations in my ear?
No justice, Lord! how must I pray to thee,
  When here am I and he on yonder bier?
He was my all, my heart, my joy and life:
O God! renew my peace, oh, still this strife!"

No more, no more a tear, no more a sigh,
  Heaven does not weep when lives the good man there,
But angels sing and holy seraphs cry,
  "The good are now in rest, the heart in prayer."
He never dies in vain who lived to do
His duty as *he* did, dies not that virtue true!

II.—GRANT: THE DEFENDER OF THE UNION.

A hero's crown, a hero's tribute bear!
  What shall it be? yon hoop of glittering stones
That old-world kings hereditary wear?
  Or mouldering shrines carved from their victim's bones?
Not such for thee, modest, and true, and right,
Our patriot Grant, thy countrymen's delight.

Far, where "the Beauteous river,"[1] rolling, runs;
Far, thro' the walnut groves, the sycamore;
Down, down the purple vales whose glorious suns
Array the seasons with their fruitful lore,—
There, from his modest home, a hero came,
Beneath the ancestral trees that lisped his name.

Gentle of speech, most kindly in his heart,
He grew to manhood, loved and prized by all,
One of our noble classes, by his art
Mechanic raised above the royal thrall,
Man, from the working classes, free and good,
By virtue of such rank, sweet to the multitude.

The landscape smiled, the purple vales shone fair,
Light waved the alder-tassels o'er the streams,
And yet a haze crept o'er the lake, the air,
A troubled murmur breaking the gay dreams.
Grant! in thy patriot-heart thou heard'st the call:
God calls for manhood,—"Freedom must not fall."

Thou heard'st that cry for freedom in thy soul;
Then peaceful, tender streams ran red with gore,
The generous field bore crops of bloody tales,
The wave with sinking ships all stranded o'er.
Just God! such strife as *this* must brothers see?
Father of love, fearful were victory!

Years fled and fled, yet marched the embattled host;
The mother sank,—she wept her murdered boy;
The church-yard groaned, squadrons are raised and lost,
When shall war end,—is fate a nation's toy?
When *must* it end? The Union shall remain,
As one, unsundered still, they try their plots in vain.

He found the path, the war-path of the fray.
He said: "I fight it out upon this line,"
Come weal or woe, or fair or foul the day,
An iron hand demands a steel divine.
Unyielding, fixed, yet merciful to all,
Grant kept his line and saved the Union's fall.

A thousand years may run, his name shall stand
Bright as a sunshine pillar on the past.
His gentle heart, his resolute command,
Loved by us all, as North or South is fast,—
Fast in the nation's heart,—whate'er may come,
Grant is the people's pride, his country's home.

[1] The meaning of "*Ohio*," the Indian name.

The strife is o'er, the landscape smiles again;
Far o'er her fertile vales the sun-god pours
His purple blessings on the inland main,
And smiling ships embrace her peaceful shores.
Thro' heaven's design our Grant was sent to be
Chosen of him, to bring us Liberty!

LECTURES ON PANTHEISM AT THE CONCORD SCHOOL.

In this number we print four of the discussions of the Symposium at the Concord School of Philosophy held last summer. The subject, "Is Pantheism the Legitimate Outcome of Modern Science?" was treated also by Messrs. John Fiske and Francis Ellingwood Abbot in elaborate papers, which have since been expanded by their authors into books and published. The following advertisements indicate the character of the contents of these books:

THE IDEA OF GOD AS AFFECTED BY MODERN KNOWLEDGE. By JOHN FISKE.

Contents: Difficulty of expressing the Idea of God so that it can be readily understood; The Rapid Growth of Modern Knowledge; Sources of the Theistic Idea; Development of Monotheism; The Idea of God as immanent in the World; The Idea of God as remote from the World; Conflict between the Two Ideas, commonly misunderstood as a Conflict between Religion and Science; Anthropomorphic Conceptions of God; The Argument from Design; Simile of the Watch replaced by Simile of the Flower; The Craving for a Final Cause; Symbolic Conceptions; The Eternal Source of Phenomena; The Power that makes for Righteousness; Notes.

Published by Houghton, Mifflin & Co., Boston and New York. 16mo. Price, $1.

SCIENTIFIC THEISM. By FRANCIS ELLINGWOOD ABBOT, Ph.D.

General Synopsis of the Argument for Scientific Theism.

I. The Foundation of Scientific Theism is the Philosophized Scientific Method.

II. The Ground-Principle of the Philosophized Scientific Method is the Infinite Intelligibility of the Universe *per se.*

1. What is Intelligibility?

Ans. Intelligibility is the Possession of an Immanent Relational Constitution.

2. What is Intelligence?

Ans. Intelligence is:

(1) The Sole Discoverer of Immanent Relational Constitutions.

(2) The Sole Creator of Immanent Relational Constitutions.

(3) Identical in all Forms, and in all Teleological.

III. The Infinite Intelligibility of the Universe proves its Infinite Intelligence, because only an Infinite Intelligence could create an Infinite Relational Constitution.

IV. The Synchronous Infinite Intelligibility and Infinite Intelligence of the Universe prove that it is an Infinite Subject-Object, or Infinite Self-conscious Intellect.

V. The Immanent Relational Constitution of the Universe-Object, being Infinitely Intelligible, must be an Absolutely Perfect System of Nature; therefore:

1. Not Chaos, which would be no System at all.
2. Not a mere Multitude of Monads or Atoms, which would be an Unintelligible Aggregate of Systems.
3. Not a mere Machine, which would be an Imperfect System.
4. But a Cosmical Organism, which is the only Absolutely Perfect System.

VI. The Infinitely Intelligible and Absolutely Perfect Organic System of Nature proves that the Universe-Object is the Eternal, Organic, and Teleological Self-Evolution of the Universe-Subject —the Eternal Self-Realization or Self-Fulfilment of Creative Thought in Created Being—the Infinite Life of the Universe *per se*.

VII. The Infinite Organic and Organific Life of the Universe *per se* proves that it is Infinite Wisdom and Infinite Will—Infinite Beatitude and Infinite Love—Infinite Rectitude and Infinite Holiness—Infinite Wisdom, Goodness, and Power—Infinite Spiritual Person—the LIVING AND LIFE-GIVING GOD FROM WHOM ALL THINGS PROCEED.

VIII. Therefore, the Philosophized Scientific Method creates the only Idea of God which can at once satisfy both Head and Heart; and Scientific Theism creates the only Real Reconciliation of Science and Religion.

Little, Brown & Co., Publishers, Boston. 1 vol., 12mo. Price, $2.

BOOK NOTICES.

STORIES FROM ROBERT BROWNING. By FREDERIC MAY HOLLAND, Author of "The Reign of the Stoics." With an Introduction by Mrs. SUTHERLAND ORR. London: George Bell and Sons. York Street, Covent Garden, 1882.

This volume is an English reprint of the American edition, and shows how welcome to England is any foreign evidence of the Browning cult. The long introduction, by Mrs. Orr, is mainly an exegesis and eulogium of the poems, whose intricacies and historical setting Mr. Holland has clearly unfolded. His effort is very useful for the beginner in Browning. It gives the needed key to many recondite and difficult allusions; at the same time the inner significance is not neglected. "Sordello" even is made plain. The historical facts connected with "Strafford" and "The Return of the Druses" are given with sufficient fulness to clear the way for the reader; and by simply reducing such poems as "The Ring and the Book," "Colombe's Birthday," to an outline story in prose form, a light is let into Browning's confessed obscurities for which every reader will be grateful to Mr. Holland. J. A.

MARTIN LUTHER: A STUDY OF THE REFORMATION. By EDWIN D. MEAD. Boston: George H. Ellis, 141 Franklin Street, 1884.

Mr. Mead pictures for us in this volume the principal events in Luther's life; their relation to their own age and significance to ours. He looks upon the Reformation as the central point of modern history and Luther the central figure; and draws the lines from him to all succeeding attempts to liberate the mind of man from error and establish civil and religious freedom. We quote from the beginning of Chapter VII. Mr. Mead's view of the fundamental standpoint of Luther.

"Luther stands for Rationalism. He stands also for Intellectualism in religion. You think, perhaps, the two words mean one thing. I mean by Intellectualism here the doctrinal and speculative factor in religion, as contrasted with the ethical and practical. Protestantism was primarily an intellectual movement. I do not say it was not a moral movement too. I have pointed out some of the gross immoralities which provoked it, and there is no doubt that these were what first and chiefly moved the masses to the Reformation. But Luther saw, Protestantism saw or believed it saw, the cause of the immorality to be false doctrine; and it believed the cure to be true doctrine. Herein—in its primary intellectualism—the Lutheran movement differs from the Wesleyan movement, and, in a very great degree, from Christianity. Herein it resembles the Unitarian movement in New England. 'The scribes and the Pharisees sit in Moses' seat,' said Christ. 'All, therefore, whatsoever they bid you observe, that observe and do, but do not ye after their works.' And Wesley had very little trouble with the English catechism, but very much trouble with English immorality and irreligion. But with Luther the case is different. He was not primarily a practical reformer, but a doctrinal reformer. 'Wyclif and Huss,' he said, 'assailed the immoral conduct of the papists; but I chiefly oppose and resist their doctrine. I affirm, roundly and plainly, that they preach not the truth. To this I am called. I take the goose by the neck and set the

knife to its throat. I fall upon the pope's soul—his doctrine—not regarding his body—that is, his wicked person and life. When I can show that the papists' doctrine is false, which I have shown, then I can easily prove that their manner of life is evil. For, when the word remains pure, the manner of life, though something therein be amiss, will be pure also.'

"With his usual reckless inconsistency he says on the same page: 'Our manner of life is as evil as that of the papists'; and we well know that he did pay very much regard to the pope's 'wicked person and life.' But this passage truly and well illustrates the fundamental character of Luther's mind and the order of his thought." J. A.

ÉMILE; OR, CONCERNING EDUCATION. Extracts, containing the Principal Elements of Pedagogy found in the First Three Books. With an Introduction and Notes. By JULES STEEG, Député, Paris, France. Translated by ELEANOR WORTHINGTON, formerly of the Cook County Normal School, Ill. Boston: Published by Ginn, Heath, & Co., 1885.

These extracts are published chiefly in the interest of teachers and educators, and are a valuable contribution to the literature of Pedagogics. The compiler, M. Jules Steeg, remarks in his introduction that "there is no one who does not know the book by name and by reputation; but how many parents, and even teachers, have never read it!" He goes on to explain this neglect of a once famous book as due, in part, to the great changes in social and political conditions since it was written, which have antiquated some portions, while others have become so well incorporated into modern ideas of education as to be commonplace. It is, however, important for educators to know the historical course of their own science; and to such these extracts will be welcome, and they will, perhaps, wish hereafter to become acquainted with the whole of Emile, and the extraordinary effects of the work upon educational ideas throughout Europe. No single book ever made so much noise in the world. It was the gospel of the latter half of the eighteenth century. Condemned by church and state, its principles were accepted and practiced in private, especially in Germany and Switzerland. Three celebrated educators were inspired by it—Basedow, Pestalozzi, and Froebel. This will be enough to recommend it to the attention of all those who are at present discussing the Kindergarten, and the enlargement of the scope of education, from the nursery to the university. J. A.

THE LITERARY REMAINS OF THE LATE HENRY JAMES. Edited, with an Introduction, by WILLIAM JAMES. Boston: James R. Osgood & Co., 1885.

This volume is in the nature of a filial tribute, from one of Henry James's two distinguished sons. The introduction, consisting of 113 pages, is in part expository, in part a bringing together, of Henry James's special philosophical and theological ideas. It shows him to have been a philosopher with no very well-defined system, and a theologian without a church. He was *sui generis*; a great critic, and master of a style that commended his discussions of subjects not generally popular. His son and editor describes justly, we think, his literary characteristics:

"From the very outset of his literary career we find him in the effortless possession of that style with which the reader will soon become acquainted, and which, to its great dignity of cadence and full and homely vocabulary, united a sort of inward palpitating human quality, gracious and tender, precise, fierce, scornful, humorous by turns, recalling the rich vascular temperament of the old English masters rather than that of an American of to-day."

Whether the reader will find all these descriptive epithets justified, we will not undertake to forecast; if the half of them is true, it is great praise. We see nothing ourselves to remind us of old English masters, and much that does indicate the American of to-day, whose literary token is an effort to make himself heard by a diction out of proportion to the thing said. American writers have not yet attained poise and repose, but are unduly stimulated by the immense material activities which surround them, and the vast spaces and distances over which they strain to make their voices heard. Yet it may be these very moral and natural features which, by their continental proportions, will finally constitute a literature and a mode of expression distinctively American, in contrast to those which have been the products, in other times and countries, of narrower boundaries and more concentrated populations. Former literatures have been, to a degree, localized; ours, the long-hoped-for American, can never be confined to particular cities and districts, on account of our homogeneous race, our spacious territory, and ease of communication.

The editor of this volume, after speaking of Mr. James's style, goes on to sum up the subject-matter which it illuminates. He says that "few authors have so devoted their lives to the monotonous elaboration of one single bundle of truths." The contents of this bundle, divested of all wrappings, is a message as to the true relation between mankind and its Creator. This was the effort of his life. He kept repeating it as long as he lived, but did not vary its essential terms. This relation of mankind to God he apprehended in its theological expression; and so, as his son and editor declares, he found himself born into a time when his work was without effect. His time was not interested in what most interested him; if it stopped to listen, it was puzzled, and never sincerely studied him. It is also doubtless true that his theological position was supposed to impugn most current theologies. Still he never gave up nor grew silent, but continued his unheeded work to the end, consoled by the truths to which from youth he had dedicated his life.

The introduction is followed by a short and unfinished autobiography. As far as it extends it is an analysis of the moral and spiritual conflicts of his childhood. There is, toward the close of this fragment, a brief episode, in which his peculiar ideas respecting the institution of the family, as a temporary condition of society, find a very clear expression. It must be kept in mind, in reading the following remarkable passage to which we have just alluded, that the intensity of Mr. James's belief in a final divine form of humanity forced him to look upon all civic institutions as provisional. He had no doubtful substitute to offer, such as usually invalidates social reforms; but lived and thought in the contemplation of a divine ideal.

"The truth is, that the family tie—the tie of reciprocal ownership which binds together parent and child, brother and sister—was, when it existed in its integrity, a purely legal, formal, typical tie, intended merely to represent or symbolize to men's imagination the universal family, or household of faith, eventually to appear upon the earth. But it never had the least suspicion of its own spiritual mission. It was bound, in fact, in the interest of self-preservation, to ignore this its vital representative function, to regard itself as its own end, and coerce its children consequently into an allegiance often very detrimental to their future spiritual Manhood. For any refining or humanizing influence accordingly which the family is to exert upon its members we must look exclusively to the future of the institution, when it will be glorified for the first time into a natural or universal bond. It is a denial of order to demand of the subterranean germ what we expect of the full corn in the ear."

"Man is destined to experience the broadest conceivable unity with his kind—a unity regulated by the principle of spontaneous taste or attraction exclusively; and it is only our puerile civic *régime*, with its divisions of rich and poor, high and low, wise and ignorant, free and bond, which keeps him from freely realizing this destiny; or rather let us say that it is the debasing influence which this civic *régime* exerts upon the heart and mind of men that keeps them as yet strangers even in thought to their divine destiny. Now, the isolated family bond is the nucleus or the citadel of this provisional civic economy; and practically, therefore, the interest of the isolated family is the chief obstacle still presented to the full evolution of human nature. I do not say that the family in this country *consciously* antagonizes the social spirit in humanity, or is at all aware, indeed, of that deeper instinct of race-unity which is beginning to assert itself. Still, it is a very rancorous and deep-rooted prejudice, and speculatively operates every sort of vexatious hindrance to the spread of the social spirit. The 'rich' family looks down upon the 'poor' family, the 'cultivated' family upon the 'uncultivated' one—the consequence being that this old convention which we have inherited from our European ancestry still profoundly colors our practical ethics, and blights every effort and aspiration toward race-harmony."

In corroboration of this view of the origin and destiny of the family institution he thinks that he sees, even in the infant, signs of an instinct in opposition to domestic rule; and that the child soon finds his real life beyond the home circle. And, speaking of his own personal experience in reference to the preceding speculations, he confesses that, although his own domestic situation was full of natural affections and joys, "nevertheless, I was never so happy at home as away from it."

In reflecting on this attitude of Mr. James toward one of the most sacred of our social institutions, we must constantly remind ourselves that it is not to be separated from his general idea of the relation of man to God, and his vision of society as the final redeemed form of man—man, in short, fully endowed with divine attributes and leading on this earth a heavenly life.

There follows after this autobiographic fragment a series of essays connected under the general title of "Spiritual Creation." This makes the body of the present volume. There are fifteen chapters of it, and we name some of the more important. The first chapter is entitled "The Indigestible Newspaper"; the fifth, "Nature a Hostile Element in Creation"; the eighth, "A Conscience of Sin"; the tenth, "Mr. Emerson"; the eleventh, "Swedenborg and Science"; the twelfth, "Science in Relation to the Intellect."

It is worth while to read what he says of Emerson, as he speaks from long and intimate acquaintance. His criticism of Emerson, as an intellectual and spiritual being, is altogether unique, slightly perverse, or in the spirit of contradiction; and shows in an objective manner Mr. James's idiosyncrasies on the spiritual side.

The volume concludes with "Some Personal Recollections of Carlyle," and a complete bibliography of Mr. James's writings. JOHN ALBEE.

SELECTED POEMS FROM MICHELANGELO BUONARROTI. With Translations from Various Sources. Edited by EDNAH D. CHENEY. Author of "Gleanings in the Fields of Art." Boston: Lee and Shepard, Publishers. New York: Charles T. Dillingham, 1885.

The poems of Michelangelo were not intended for publication, but were written to satisfy an inward need to complete an inward self-cultivation. They were first printed

fifty-nine years after his death; but not until the middle of the present century was there a complete edition, edited from original sources. Michelangelo's poetry has the same qualities as his art; it is strong, lofty, and restrained. (His sonnets have been called "sculptured.") The sentiment of love with which it abounds is elevated to the same spiritual plane as in Dante's "Vita Nuova" and the "Divine Comedy." The "Uranian Venus" is the Muse of both. Philosophy, in its broadest meaning, is the foundation of Michelangelo's as of Dante's power. Dante was an Aristotelian; Mrs. Cheney thinks that Michelangelo leaned more to Plato. Often and often has the likeness between the two great Italians been shown.

We reprint from this valuable selection a sonnet to Dante, and Madrigal VII., both translated by Mrs. Cheney, who thinks that the Madrigal gives Michelangelo's whole philosophy of art and beauty.

We also reprint Sonnet LII., translated by Wordsworth, perhaps the finest of those addressed to Vittoria Colonna. It reflects the same ideal of love that is everywhere found in Dante. That this feeling of spirituality was mutually experienced is testified by a sentence in one of Vittoria Colonna's letters to Michelangelo: "Stabile amicizia et legata in cristiano nodo, securissima affezione." J. A.

TO DANTE.

(1545.)

From Heaven he came, a mortal then;
  And Hell's just path and Mercy's highway trod,
  Living, returned to look upon his God,
And give his holy light to us again:
A shining star, that with its brilliant rays
  Illumed in evil times the nest where I was born.
  As guerdon fit for him, this wicked earth I scorn
God, his creator, him alone repays.
I speak of Dante; for, alas! ill known
  His labors are, by that foul mob ingrate,
Whose honors fail but to the just alone.
  Would I were he! for born to such a fate,
His bitter exile, and his courage shown,
  I would not change for Earth's most happy state.

MADRIGAL.

VII.

To bind me to my calling high,
By birth was given me beauty's light,
Lantern and mirror of two noble arts;
And other faith is but a falsity.
This bears the soul alone to its proud height
To paint, to sculpture, this all strength imparts.
And other judgments foolish are and blind,
Which draw from sense the beauty that can move
And bear to heaven each heart with wisdom sane
No road divine our eyes infirm may find;
The mortal may not from that world remove
Whence without grace to hope to rise is vain.

TO VITTORIA COLONNA.

SONNET LII.

No mortal object did these eyes behold
When first they met the placid light of thine,
And my soul felt her destiny divine,
And hope of endless peace in me grew bold:
Heaven-born, the soul a heavenward course must hold.
Beyond the visible world she soars to seek
(For what delights the sense is false and weak)
Ideal Form, the universal mould.
The wise man, I affirm, can find no rest
In that which perishes; nor will he lend
His heart to aught which doth on time depend.
'Tis sense, unbridled will, and not true love,
That kills the soul; love betters what is best,
Even here below, but more in heaven above.

PESTALOZZI'S LEONARD AND GERTRUDE. Translated and abridged by Eva Channing. Boston: Published by Ginn, Heath, & Co., 1885.

Whether it be possible to condense into 181 small pages the full purport of Pestalozzi's large work of the above title we have some doubt. But here are, at least, some choice selections, valuable in themselves and also as an incentive to a more complete study of Pestalozzi.

"Leonard and Gertrude" is not strictly a pedagogical treatise in the disguise of a story, as is Rousseau's "Émile," but is a picture of Swiss peasant life in the eighteenth century, interspersed with reflections on life, politics, morals, religion, and education. The portions selected for translation are chiefly those concerning the nurture and education of children. We quote the following passage, not for its intrinsic excellence, but for historical comparison, as a landmark and starting-point of certain elementary principles now accepted and more fully developed, yet in Pestalozzi's time considered novel and doubtful.

"The new master was anxious, above all, to accustom his charges to strict order, and thus lead them to the true wisdom of life. He began school punctually on the stroke of the clock, and did not allow any one to come in late. He also laid great stress on good habits and behavior. The children were obliged to come to school clean in person and apparel, and with their hair combed. While standing, sitting, writing, and working, they always were taught to keep the body erect as a candle. The school-room must be clean as a church, and he would not suffer a pane of glass to be missing from the window, or a nail to be driven crooked in the floor. Still less did he allow the children to throw the smallest thing upon the floor, or to eat while they were studying; and it was even arranged that in getting up and sitting down they should not hit against each other." J. A.

ASPECTS OF HUMANITY. By RICHARD RANDOLPH, author of "Sober Thoughts on Staple Themes," etc.

The above-named work was originally published, though but slightly advertised, in the year 1869. It is a brief Philosophical Allegory, professing to connect Religion with all Science, not "falsely so called," by identifying the process of Revelation with the

progressive (however gradual or intermittent) Generation of Thought in the healthy consciousness of mankind. Illustrative passages by contemporaries and predecessors are appended. As being also relevant to the purpose of the work, some texts are here subjoined, taken from Purver's Version of the Bible, favorably known even outside of the Society of Friends, of which the Translator was a member:

"Truth blossoms up out of the earth, and righteousness beams down from heaven."—(Ps. lxxxv, 11.)

"Whatever He shall hear will speak."—(John xvi, 13.)

"All things belonging to life and piety are of His divine power that is given us through the knowledge of Him who has called us by glory and virtue. . . . There is not any prophecy of Scripture of its own exposition."—(2 Pet. i, 3, 20.)

Price, 60 cents; if mailed, 65 cents. For sale by Frank A. Sniffen, Friends' Institute, 1316 Filbert Street, Philadelphia.

BOOKS RECEIVED.

Scientific and Poetical Works of the Last of the Hereditary Bards and Skalds. Chicago: The J. M. W. Jones Stationery and Printing Company. 1884.

A Synopsis of the Scientific Writings of Sir William Herschel, prepared by Edward S. Holden and Charles S. Hastings. (From the Smithsonian Report for 1880.) Washington: Government Printing-Office. 1881.

The Rational Vindication of Christianity. A Baccalaureate Sermon, preached in Jacob Sleeper Hall before the Graduating Class of Boston University, on Sunday, June 1, 1884. By James E. Latimer, S. T. D., Dean of the School of Theology. Boston: University Offices, 12 Somerset Street. 1884.

Physics and Occult Qualities. An Address delivered before the Philosophical Society of Washington, December 2, 1882. By William B. Taylor, retiring President of the Society. Washington: Judd & Detweiler, Printers. 1882.

Life Eternal. By Alexander Wilder. (Read before the American Akademe, Jacksonville, Ill., at its Regular Meeting, March 17, 1885.)

The New Education in the New South. By A. D. Mayo.

Addresses at the Inauguration of Merrill Edwards Gates, Ph. D., LL. D., as President of Rutgers College, New Brunswick, N. J., Tuesday, June 20, 1882. New York: Press of Gilliss Brothers, 75 Fulton Street. 1883.

On Some Omissions of Introspective Psychology. By Prof. William James, Harvard University. (Reprinted from "Mind," a Quarterly Review of Psychology and Philosophy. No. XXXIII.)

Criteria of Diverse Kinds of Truth as opposed to Agnosticism; being a Treatise on Applied Logic. By James McCosh, D. D., LL. D., D. L., author of "Intuitions of the

Mind," "The Emotions," etc. (Philosophic Series, No. I.) New York: Charles Scribner's Sons. 1884.

Energy Efficient and Final Cause. By James McCosh, D. D., LL. D., D. L., author of "The Laws of Discursive Thought," "Emotions," etc., President of Princeton College. (Philosophic Series, No. II.)

Development: What it can do and What it cannot do. By James McCosh, D. D., LL. D., D. L., author of "The Method of Divine Government," "Emotions," etc., President of Princeton College. (Philosophic Series, No. III.) New York: Charles Scribner's Sons. 1884.

Certitude, Providence, and Prayer. By James McCosh, D. D., LL. D., D. L., President of Princeton College, author of "Method of Divine Government," "Intuitions," "Laws of Discursive Thought," "Emotions," etc. (Philosophic Series, No. IV.) New York: Charles Scribner's Sons. 1883.

Locke's Theory of Knowledge, with a Notice of Berkeley. By James McCosh, D. D., LL. D., D. L., President of Princeton College, author of "Method of Divine Government," "Intuitions," "Laws of Discursive Thought," "Emotions," etc. (Philosophic Series, No. V.) New York: Charles Scribner's Sons. 1884.

Agnosticism of Hume and Huxley, with a Notice of the Scottish School. By James McCosh, D. D., LL. D., D. L., President of Princeton College, author of "Method of Divine Government," "Intuitions," "Laws of Discursive Thought," "Emotions," etc. New York: Charles Scribner's Sons. 1884.

A Criticism of the Critical Philosophy. By James McCosh, D. D., LL. D., D. L., President of Princeton College, author of "Intuitions of the Mind," "Laws of Discursive Thought" (A Treatise on Mind), "Emotions," etc. New York: Charles Scribner's Sons. 1884.

Metaphysic in Three Books: Ontology, Cosmology, and Psychology. By Hermann Lotze. English translation, edited by Bernard Bosanquet, M. A., Fellow of University College, Oxford. (Clarendon Press Series.) Oxford: At the Clarendon Press. 1884.

Modern Thinkers, principally upon Social Science. What they think, and why. By Van Buren Denslow, LL. D., with an Introduction by Robert G. Ingersoll. With Eight Portraits. Chicago and New York: Belford, Clarke & Co. 1884.

Cratilo. Dialogo di Platone; tradotto da Ruggero Bonghi. Vol. V. Torino: Roma: Firenze: Fratelli Bocca, Librai-Editori. 1885.

Aspects of Humanity, Brokenly Mirrored in the Ever-swelling Current of Human Speech. Philadelphia: J. B. Lippincott & Co. 1869.

Philosophical Dialogues and Fragments. From the French of Ernest Renan, Member of the Institute. Translated, with the sanction of the author, by Râs Bihârî Mukhârji. London: Trübner & Co., Ludgate Hill. 1883.

Agamemnon's Daughter. A Poem. By Denton J. Snider, author of "A Walk in Hellas," "Delphic Days," etc. Boston: James R. Osgood & Co. 1885.

T. Lucreti Cari, De Rerum Natura, Libri Sex. With an Introduction and Notes to Books I, III, and V. By Francis W. Kelsey, M. A., Professor of Latin in Lake Forest University. Boston: John Allyn, Publisher. 1884.

Studies and Exercises in Formal Logic; including a Generalization of Logical Processes in their Application to Complex Inferences. By John Neville Keynes, M. A., late Fellow of Pembroke College, Cambridge. London: Macmillan & Co. 1884.

The Economy of Human Life. Translated from an Indian Manuscript; written by an ancient Brahmin. To which is prefixed an account of the manner in which the said manuscript was discovered, in a letter from an English gentleman residing in China to the Earl of . . . . Printed for Joseph Peace Hazard. Times Print, Wakefield, R. I. 1883.

Outlines of Metaphysic. Dictated Portions of the Lectures of Hermann Lotze. Translated and Edited by George T. Ladd, Professor of Philosophy in Yale College. Boston: Ginn, Heath, & Co. 1884.

The Religion of Philosophy; or, the Unification of Knowledge. A Comparison of the Chief Philosophical and Religious Systems of the World, made with a View to reducing the Categories of Thought, or the most General Terms of Existence, to a Single Principle, thereby establishing a True Conception of God. By Raymond S. Perrin. New York: G. P. Putnam's Sons, 27 and 29 West Twenty-third Street; London: Williams & Norgate. 1885.

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